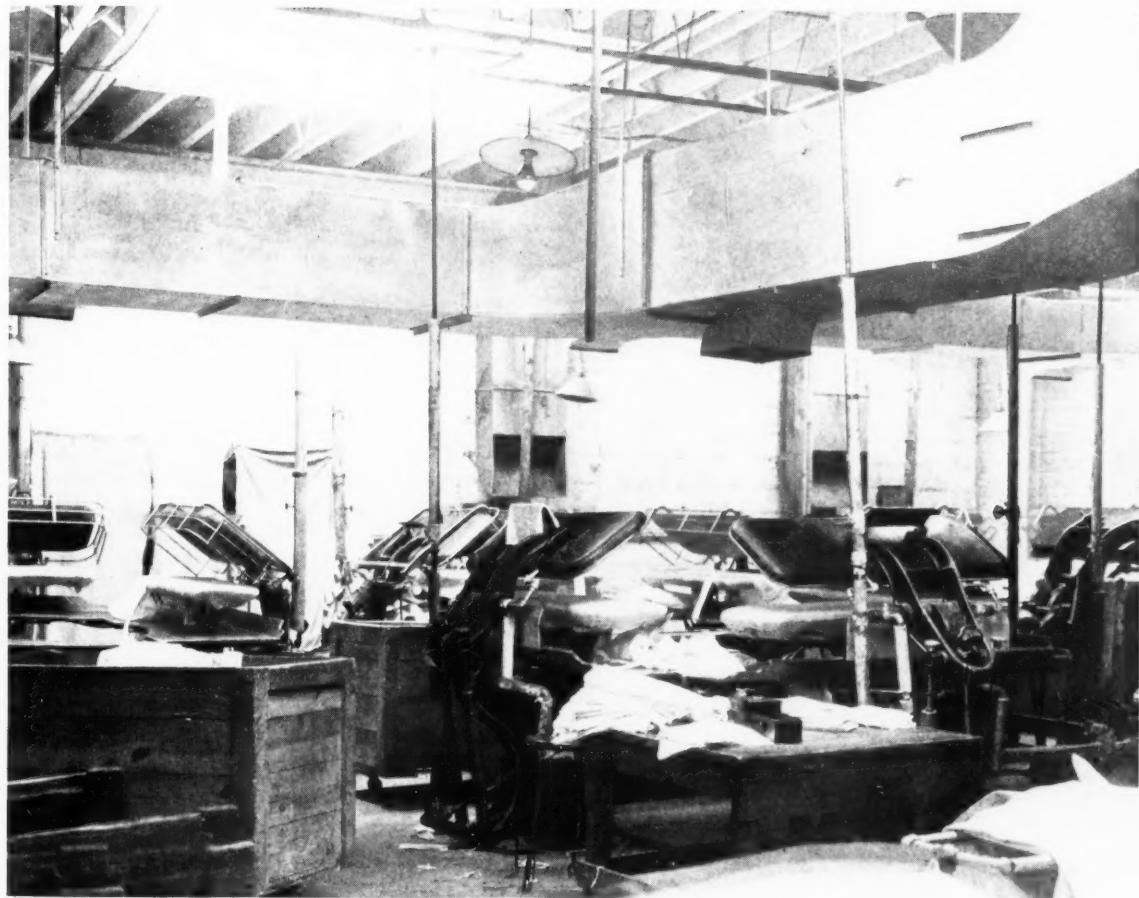


# American Artisan

## THE WARM AIR HEATING AND SHEET METAL JOURNAL

FOUNDED 1880



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Years ago laundries got along without mechanical ventilation, but today, with high-speed machines, higher temperatures, more heat- and steam-producing machines, some form of mechanical exhaust must be provided for these by-products. This exhaust line for a group of presses is a typical installation.

More information will be found inside this issue

OCTOBER 12, 1931

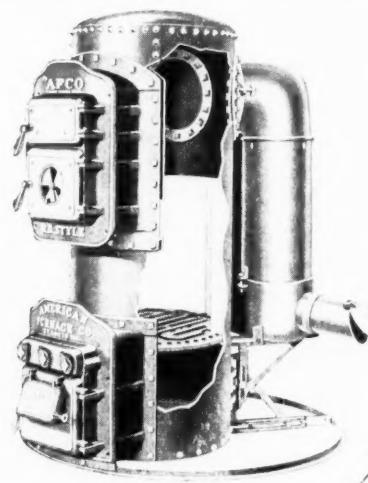


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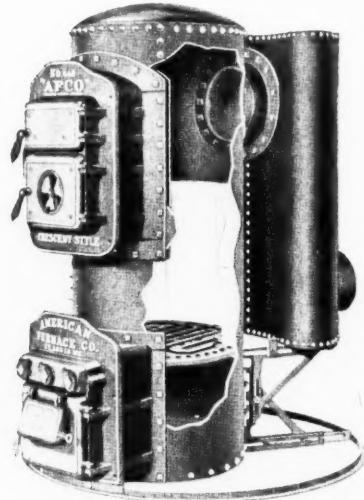


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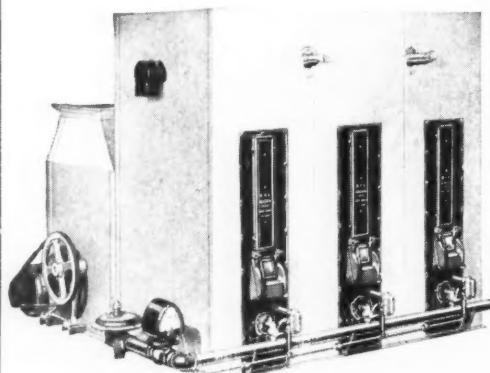


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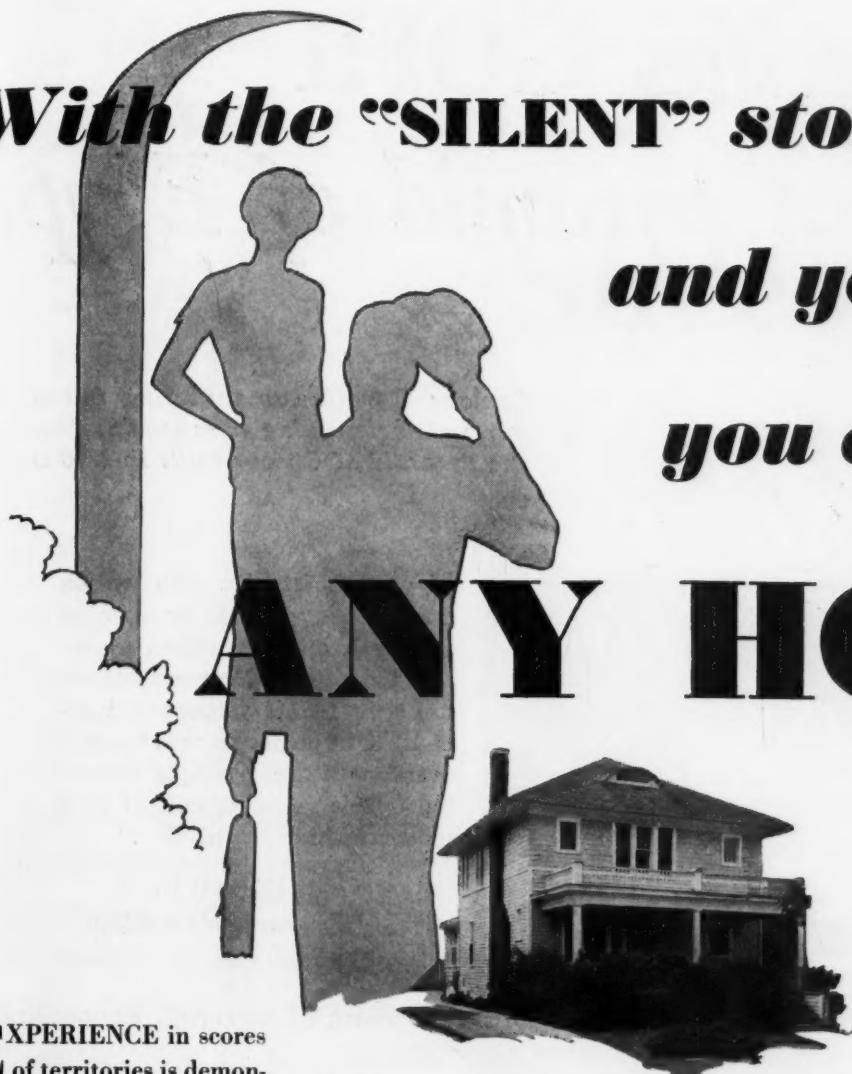
for Warm

**SII**

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INDEX F



*With the "SILENT" story  
and your own  
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ANY HOME*



*Another Utica, N. Y., installation of Silent Automatic and warm air—the residence of F. J. Mulligan, 138 Proctor Blvd.*

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INDEX PAGES—14 and 56

[VOL. 100, No. 21]

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BUYERS' DIRECTORY 52 and 54

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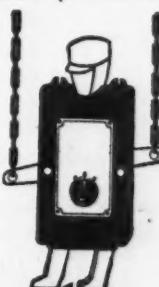
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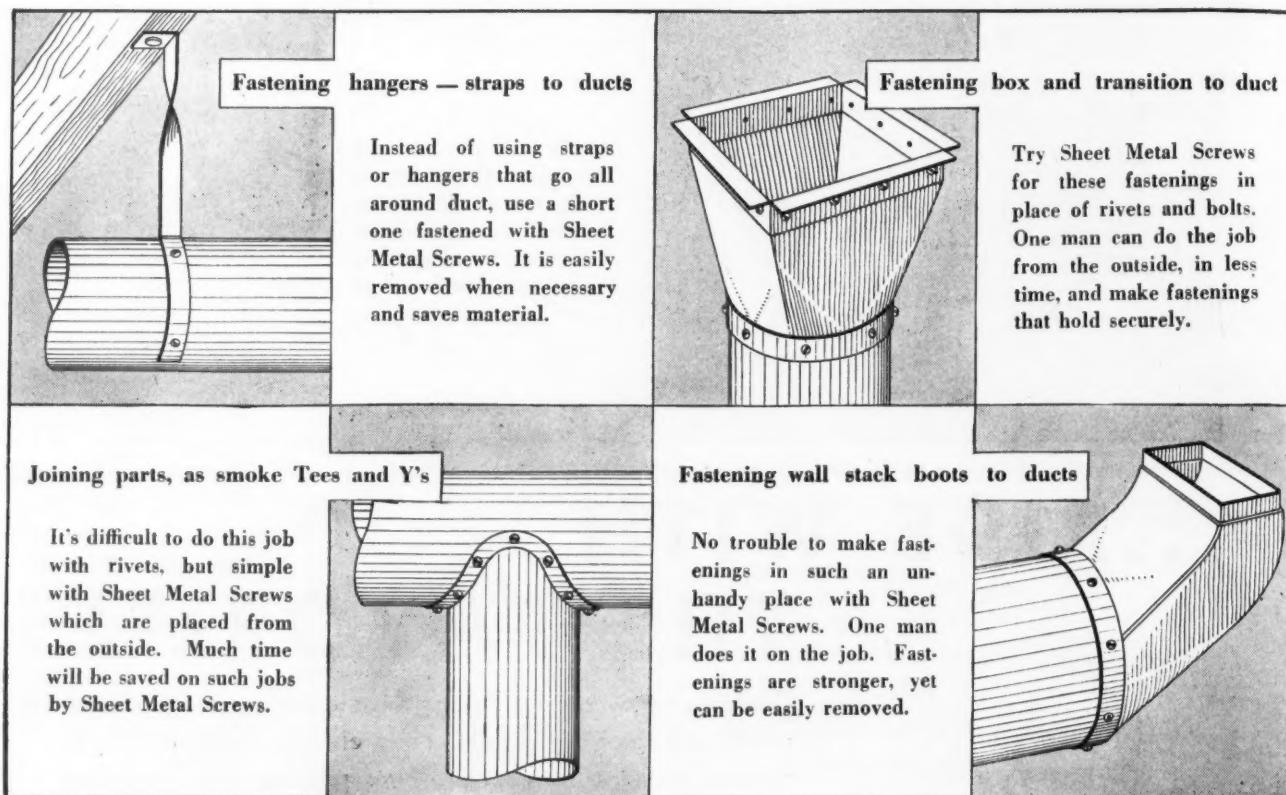
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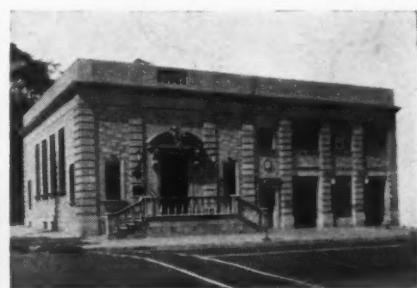
For further information, address Revere Copper and Brass Incorporated, 230 Park Ave., N. Y. C.



Charles L. Stanton furnished the sheet metal work (of Revere Sheet Copper) for this residence at Rosemont.



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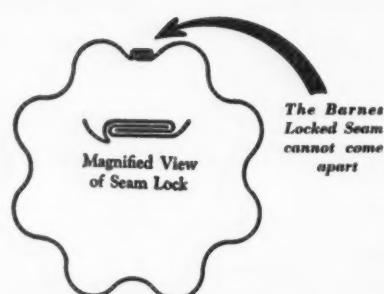
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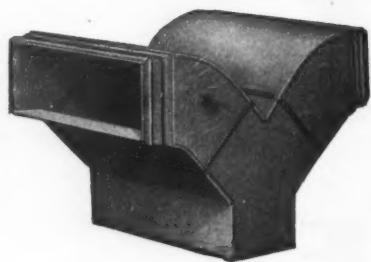
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*Offices in Principal Cities*

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**"SUPREME"**

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on many furnace installation jobs, lies in the labor costs. When you use

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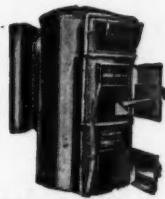
your labor costs go down—because this pipe is made to FIT. Sections snap together quick and easily; wall stacks grow very rapidly; offsets are readily accommodated. And you have the added satisfaction of knowing that, on that job, you used the pipe that is

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130 Commonwealth Ave., Duluth, Minn.

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Founded 1880

# American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Covering All Activities  
IN  
Gravity Warm Air Heating  
Forced Warm Air Heating  
Sheet Metal Contracting  
Air Conditioning  
Industrial Roofing  
Merchandising  
Ventilating

Most warm air furnace dealers heat their own house with a furnace. Those who don't, should. Why every contractor doesn't make the furnace in his basement the experimental laboratory and also the display floor where an operating plant can be shown prospects, we haven't discovered. C. W. Hubertz of Corry, Penna., uses his plant to sell and gets away with it. There is a story about one of his sales in this issue. You'll find it mighty interesting reading.

\* \* \*

Furnace heating is so versatile that even we trade papers can't always keep up with the newest developments. Just a few weeks ago we ran across a job where a wide open building is heated by a group system employing high velocities and no ducts. We thought it made an interesting article. It is shown in this issue and we'd like to know what you think of the layout.

Member of the Audit Bureau of Circulations

VOL. 100, NO. 21

OCTOBER 12, 1931

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JOSEPH D. WILDER  
*Editor*

Published Every Other Monday

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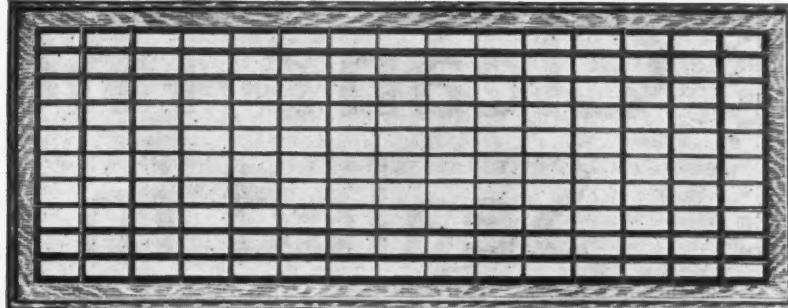
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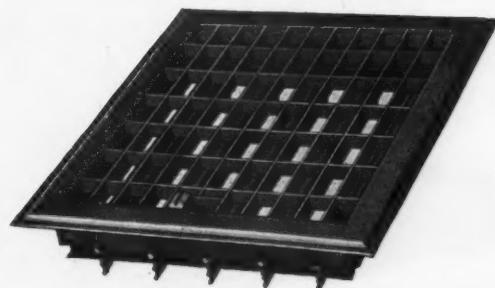
Circulation Manager: John R. Hannon Business Manager, Etta Cohn Advertising Representatives: Charles E. Kennedy  
New York Office: 295 Madison Avenue, Room 1109, Tel. Ashland 4-5342—L. R. Hudson, Eastern Representative  
Yearly Subscription Price—In United States, \$2.00; Canada (including duty), \$4.30; Foreign, \$4.00; Single Copies, \$.25

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and Floor  
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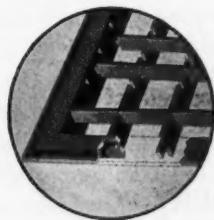


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# WATERBURY

## ALL-STEEL SEAMLESS FURNACE

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Volume 100

**American  
Artisan**  
THE WARM AIR HEATING  
AND SHEET METAL JOURNAL

Number 21

# Let's Not Depend On "Luck"!

**T**HREE seems to be a spreading opinion that business this year is being secured through two means—luck and price cutting.

This opinion is not restricted to the heating and sheet metal fields, but is gaining impetus in all fields.

In our opinion the continual harping on this idea will work insidious harm, for converts to this idea are apt to sit down and say, "what's the use." In these days when every job needs to be sold hard and intensively passive acceptance of the code of luck and price cutting results in no business by the victim.

We pretty generally accept the idea nowadays that our industries are no different from other industries. Let's see if there is anything to this luck and price cutting in other fields. If there isn't, then there should be little belief in its potency in our work.

We know from reading business reports that some companies are making more money this year than during 1930 or any other past year. The big question, of course, is—why? Was it luck, or was it something more fundamental?

One of the country's leading accounting firms made a detailed survey recently among 526 industrial corporations to discover the answer to the question. They found that out of these 526 corporations more than one-quarter or about 150 firms enjoyed better business for the first six months of 1931 than for the first six months of 1930.

This investigation covered every section of the country and every major line of industrial activity. The results proved, first, that no section of the country was favored, for firms in all sections had good business and, second, that no kind of industry was favored, for success was found in every line of activity.

This finding explodes the idea that only such classes of business as mechanical refrigeration, Eugenie hats, or natural gas are having better business.

This finding also proves that external influences are not the causes of 1931 success—so success must come from within.

"In every case studied," the report says, "the reason for success was found to come from within the organization and was almost personal in its cause and effect. Aggressiveness in the personnel, starting with the owner or the directing head and backed by a close knit organization, each member of which functions 100 per cent of the time seems to be the keynote.

"One manufacturer is doing better because he has developed a new product and is aggressively pushing it. A chain store system is making headway because they overhauled their organization, cut off all dead wood and wasteful effort. A department store is making money because it improved its personnel, analyzed its customers and their needs and directed an aggressive advertising and sales campaign to them. A mill is making money because it studied its costs and installed new management when the old did not respond."

The analysis revealed that in each case of success the company is following a well defined, thoroughly considered program and letting nothing interfere with its progress. Many of these firms have cut costs, wages, margins of profit, but only as their surveys demanded.

One startling fact revealed was that in every case the company had made a thorough study of its possible market—present and future—and pointed every effort directly at that market. Both small and large businesses were included in the survey so management rather than luck is conclusively proved the reason for success.

There should be an object lesson in this survey.

That object lesson is that every firm, whether it is one man or a hundred or a thousand, has to adopt aggressive, analytical, courageous management. Anything which interferes with progress, whether that thing be a twenty-year-old habit of doing things in a certain way, a lack of courage to sell or fire, a slothfulness in advertising, selling, estimating, pricing must go by the board. Lack of courage to do these things can result only in failure to show improvement or profit.

No part of our industry is free from this need. Many of our manufacturers are making the same old thing and marketing it in the same old way, our distributing system is in many instances archaic, our dealer and contractor outlets are making half hearted or no effort to do things any differently; many of them are afraid to get out and talk improvements. Our selling efforts all down the line are in the same rut to the same people as during the last twenty years.

If we don't watch out some organization with a new idea is going to step in and blast us off the industrial map.

# "I Took Him Into My Basement to See My Model Heating Plant"

**B**ETTER'N stoves—but not much."

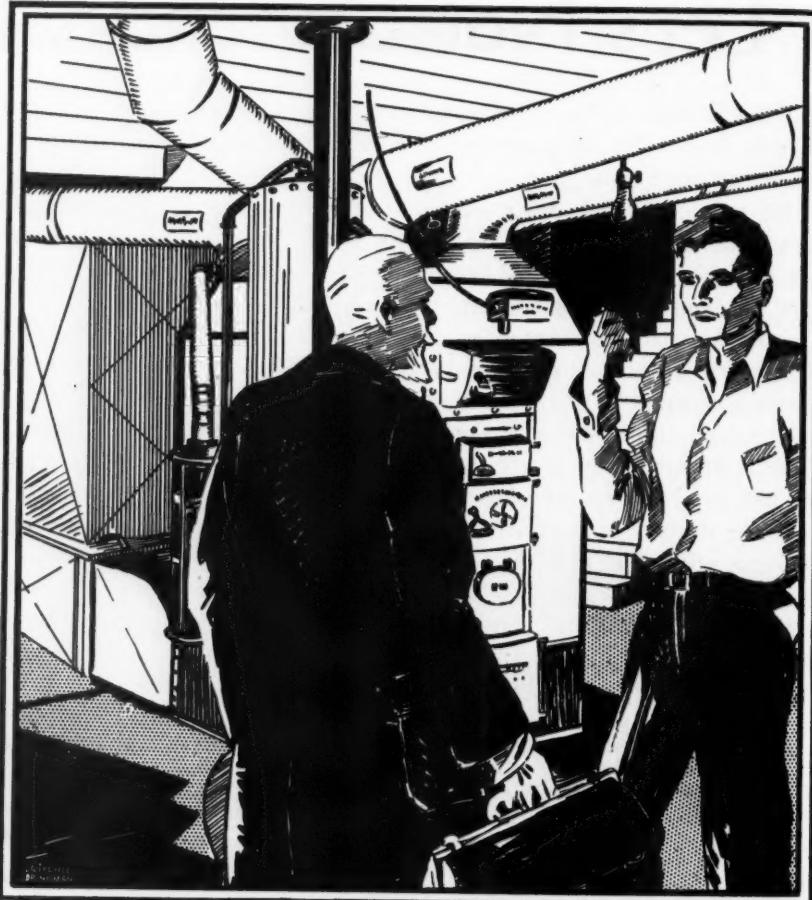
That's what a lung specialist said about a steam heating plant after he had spent weeks hanging humidifying pans on radiators and placing open pans of water around the rooms in a frantic effort to get some humidity in his home.

Then he tore out the system and substituted a hot water plant with more humidifier pans on the radiators. But the hot water plant was too small and he bought a pipeless furnace to act as an auxiliary heater for downstairs rooms on cold days.

And then he made a professional call at the home of a warm air heating contractor and was so pleased with the warm, moist atmosphere inside the house that he—but let's tell the story in its proper sequence.

This story really should begin by telling about the warm air heating contractor whose home the doctor visited. This contractor is C. W. Hubertz and his home town is Corry, Pennsylvania. Corry is not a big town, but it has at least one warm air heating contractor who is up on his toes and aggressively seeking business.

In his own house he has a warm air heating plant which gives him plenty of warmth on the coldest days. He has experimented with humidifying equipment until in his own house the air is like June weather all the year round. Mr. Hubertz's specialty is taking heating plants which either won't work or are not satisfactory from the standpoint of heat, design or capacity and making them into systems which the owners boast about. In addition to being a good doctor of sick heating systems, Mr. Hubertz is also a merchandiser of



"The doctor had tried every way to get humidity into his steam and then hot water heated home. He couldn't. He liked the fresh, humid air of my house so well that he ordered a system just like mine."

no mean ability. As he said about the doctor's visit—"I took him down into my basement and showed him the system which gave me that warm, moist atmosphere he wanted so badly. I not only showed him all the 'gadgets,' but I demonstrated what I could do in the way of getting quick heat, varying the humidity to suit individual preference, and all the other features a furnace provides. I usually try out all the latest equipment on my own system before I begin to sell them to my prospects. The doctor told me that for years he had wanted a fool-proof, healthy heating system and asked me what such an installation

would cost. I quoted the cost and got the job.

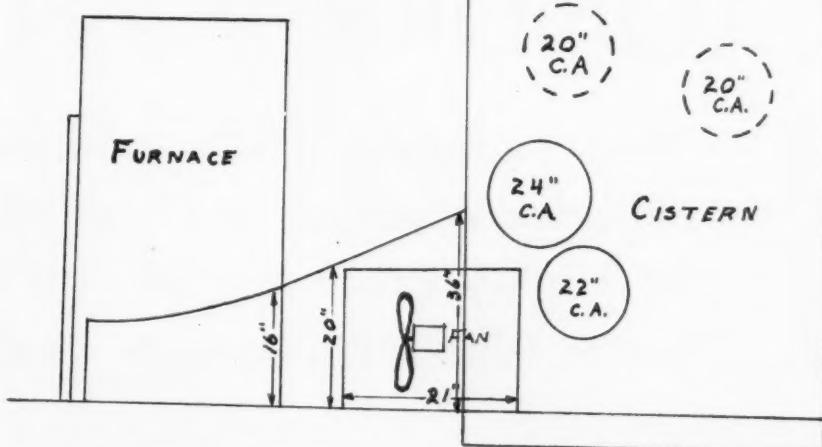
"That installation not only has proved satisfactory in every respect and lived up to the severe specifications of the doctor, but it has made him a strong booster for Hubertz's method of warm air heating the home. In the severe weather the system has been in I haven't had a call other than to replace an electric switch which went bad. The doctor has since sold several nice installations for me by telling his friends that the kind of warm, moist air he now has in his own home is a sure preventative of common winter respi-

ratory ills and a saver of doctor bills."

There are several features about this installation which are highly interesting. As shown in the plan, there was a large basement cistern in the doctor's house. This cistern wasn't used and Mr. Hubertz decided to make it into a return air room, dumping all the cooled air into the cistern and taking it to the furnace by a fan.

The plan and the elevation shows how the four return air pipes were brought across the basement and cut through the cistern wall. The elevation also shows how the connection was made between the cistern and the furnace. A special shoe which circles the casing clear around to the door casting was built. This shoe slopes up from the casing to a height of 3 feet at the cistern.

Inside the shoe a fan box was built. This box projects into the cistern and also into the shoe so that the air passing through the shoe is given an injector effect by the blast of air from the fan. This design also permits practically 100 per cent gravity flow when the fan is idle. Mr. Hubertz says that



This detail shows the special injector shoe for the fan. The drawing also shows the outline of the cistern and the cold air pipes leading into it

working on gravity the system adequately heats all but two rooms on the second floor.

The fan is a 16-inch propeller without louvers or dampers. The fan does not work as a pressure builder, but accelerates the passage of air through the shoe. Short circuiting of air through the fan is probably minimized by the depth of the fan box and by the weight of the air in the cistern.

The plan shows that the basement occupies only a small part of the ground area of the house. While

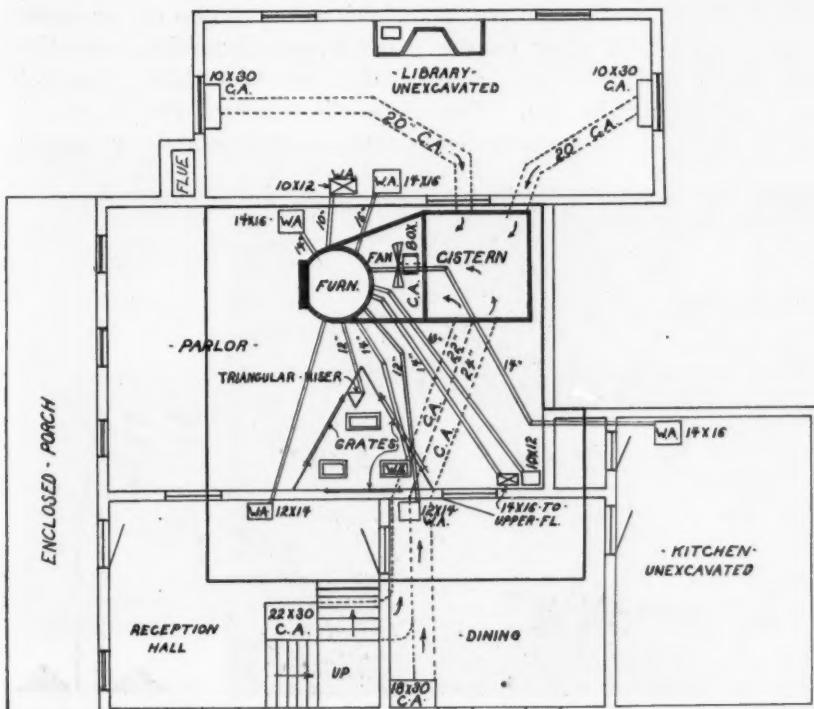
it was possible to bring practically every one of the warm air stacks up at the basement wall, all the return air runs cross this unexcavated area. Here is how these return air runs were made.

The necessary trenches were dug under the house (Mr. Hubertz says he removed three dump trucks of dirt all by hand in coal scuttles). The round pipes were then soldered at all joints and the entire length of pipe was painted with two coats of black asphaltum paint. The trenches were then lined with roofing paper and covered over the top with Celotex.

The warm air pipes which cross the unexcavated area were given a different treatment. A layer of  $\frac{3}{4}$ -inch air cell paper was wrapped all around the pipe. Then a 3-ply rubberoid paper was wrapped around the asbestos paper. The trenches were lined with roofing paper and the pipes laid. The trench was covered over with Celotex.

Inside the house there were several "tricky" problems to overcome. First there was the problem of getting warm air to the second floor. The partitions were not deep enough to take a stack. Investigation disclosed the triangular, three flue fire place chimney. One of these flues was not used so Mr. Hubertz cut into it, blocked off the top and converted the flue into a warm air riser. This flue was 12 by

(Continued on page 32)



Here is the piping plan of the doctor's rather complicated system. Note how Mr. Hubertz has used every possible structural part to get his heat where it ought to go

# LAUNDRY VENTILATION



**Most Laundries Need Additional Ventilation for Individual Machines and Interiors. This Field Should Be Highly Profitable for the Sheet Metal Contractor Who Is Equipped to Design Exhaust Systems**

**S**O badly in need of fresh air are laundries, as a general rule, that state codes usually specify that workrooms must be kept below 80 degrees and that the wet bulb depression must be not less than 8 degrees. To explain the meaning of the term depression let it be said that this is the difference between the dry bulb (ordinary) thermometer readings and the wet bulb thermometer readings. The smaller the difference between them the higher is the humidity, and, consequently, the more uncomfortable are working conditions.

Laundry owners have another reason besides the legal requirement that often causes them to install ventilating fans and this is the high rate of labor turnover caused by high temperatures and humidities encountered during operations. Although rates of pay in this business

**By R. C. NASON**

are fairly high, many able workmen and women are loth to do such work because of the discomfort and health jeopardy.

Closed washing machines are not so prone to give off large quantities of steam as open machines. Yet, workmen claim that closed machines in some cases slow up operations when additional pieces and chemicals must be placed in washers while they are running. The result is that steam emission is the rule rather than the exception.

The same is true of slopping the floor. When clothes are removed from washers, insufficient care is taken to prevent dripping on the floor, trucks very often are leaky and floors are usually wet. This factor, combined with vapor dis-

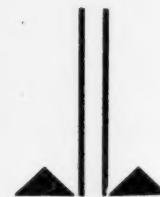
charge, contributes to maintenance of high humidities in such places.

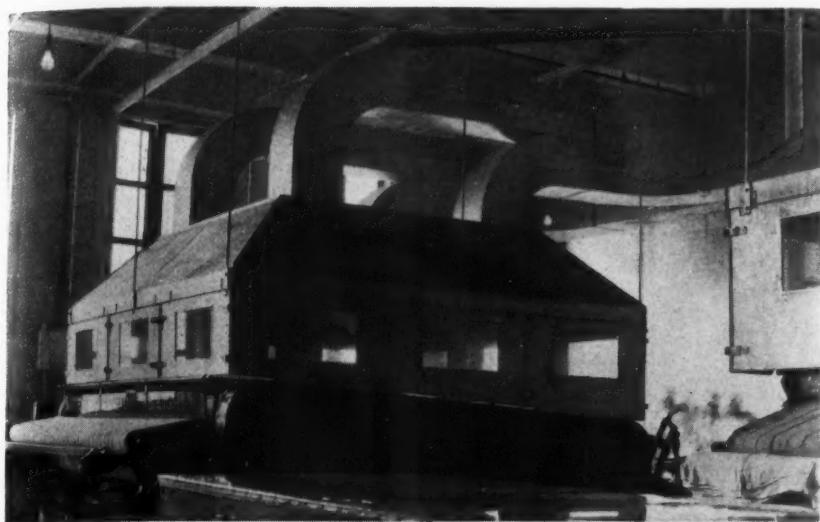
Drying rooms and drying tumblers, naturally, require heat to dry, and unless this is removed with electric exhaust fans, conditions surrounding them become unbearable. The same is true of ironing machines, of which there are flat ironers, body ironers and hand boards. As laundry workers find their clothes damp at the end of the day's duties, either from the high humidity or from perspiration, locker rooms are provided so that clothing can be changed. These rooms add still another occasion for the sale of ventilating apparatus.

There are at least two ways that fresh air conditions can be secured in power laundries, sometimes called steam laundries. One is by the use of several electric propeller fans installed in walls or skylights.



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This wood enclosed drying room has only a short life because heat, steam and moisture soon rot the wood. In addition, such rooms are seldom tight enough to keep the steam and moisture within





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This huge mangle has an ironing surface large enough to take bed sheets and table cloths unfolded. When working at top speed the heat and moisture from the rolls must be carried out of the room through a hood and fan system like this

The other, usually more effective, is by means of hoods over the heat and steam machines, that is, washers and ironers. Still a third arrangement is a combination of the two methods.

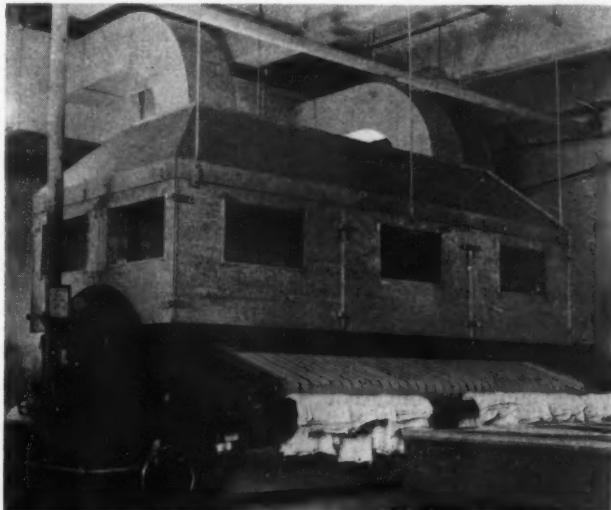
To demonstrate how the fans and ducts would best be estimated and installed, a typical laundry 100 by 60 feet with a 10-foot ceiling might be studied. Such a building is covered in plan in Fig. 1, from which one sees that this is a medium-sized institution equipped with three washers, three extractors, three large power ironers, several hand

ern laundry, equipped with tightly closed washers and tight extractors. Under these conditions there is not the same need for hooding over to

of a window or in the wall near the center of the six machines, to exhaust about 1,000 cubic feet of air per minute, will be adequate for this section of the workroom.

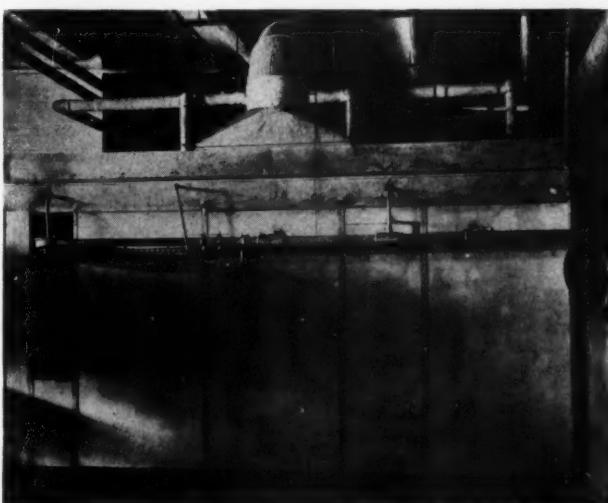
The dry room, about 20x35 feet and 10-foot ceiling, having 7,000 cubic feet contents, will be well served if the heat is extracted at the rate of one air change every 10 minutes. Consequently, in estimating, the contents are divided by 10, the quotient being the number of cubic feet to be handled by the electric propeller fan per minute which, in this case, is 700. There is no need of more rapid air change than this for heat costs real money to generate and to blow it out to the atmosphere too rapidly would be wasteful.

The large power ironers shown on the side opposite the washers, but without partitions between the two divisions of the general work,



▲  
This small mangle may have two or more operators, each feeding small linens to the rolls. Hoods connected directly with a fan must be used to carry away the heat and steam

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▼  
This is a sheet metal drying room. The metal is little effected by steam and heat and the doors always remain tight. The room is connected to a fan

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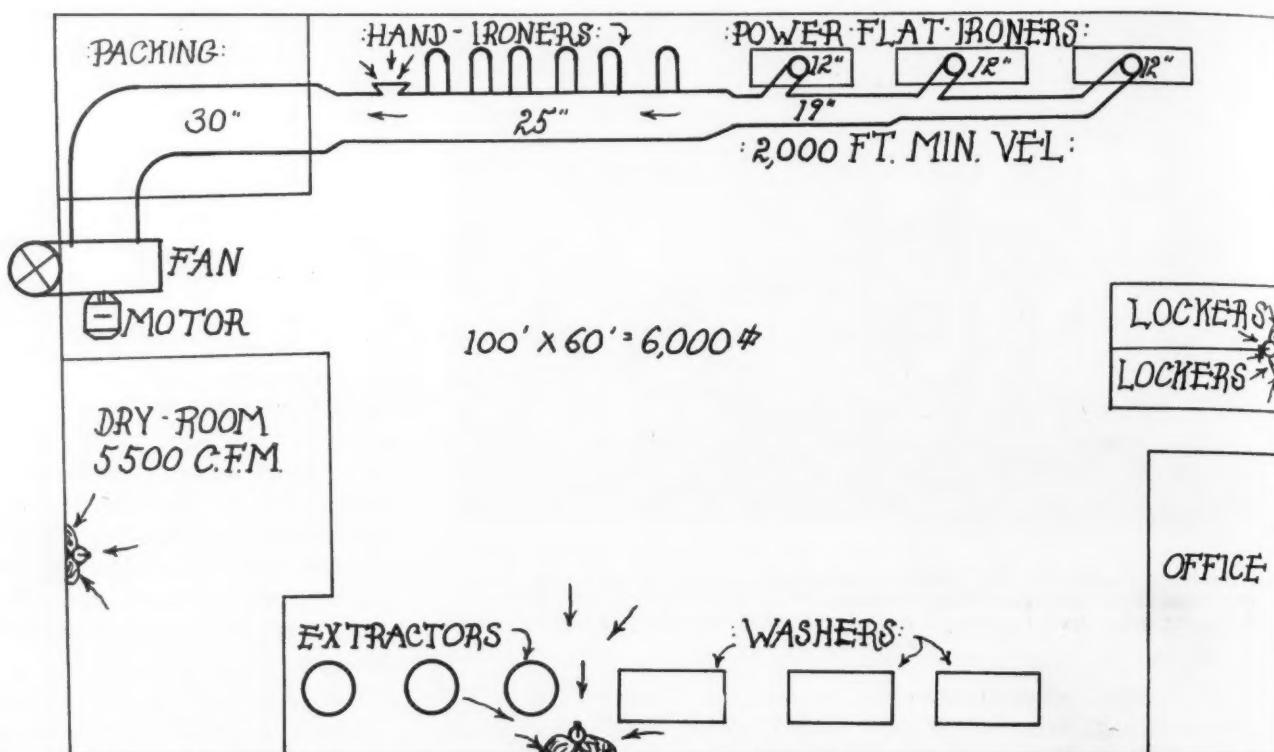
ironing boards, drying and packing rooms, office and lockers for men and women.

It is assumed that this is a mod-

catch escaped steam and dry up the wet floor as in cold and poorly equipped plants. Hence, an 18-inch electric propeller fan set in the top

are fairly good sized, say 5x8 feet and their hoods should be 1 foot greater in size all around. Hoods are of the regulation pattern with sides sloping towards an apex or central point where the exhaust duct connection will carry off the heat as it rises from the machines.

Through the 12-inch openings in each hood the mechanical, cased, electrically driven fan observed at the rear will exhaust 1,500 cubic feet per minute each. This provides a constant air current across the mouth of the hood of about 30 linear feet per minute, found by di-



Here is the layout of a typical small laundry with machines placed near the windows for light and air. Groups of machines can economically be vented by a duct system such as this. Working conditions are immeasurably improved by mechanical ventilation

viding the volume of air handled by the area in square feet, in this case 54.

This provides a duct velocity of about 2,000 linear feet per minute, the following equation applying:

$$\frac{1,500 \text{ (air volume)}}{0.784 \text{ (area sq. ft.)}} = \text{(velocity)}$$

Although duct speed as high as this rarely would be permissible in public buildings on account of the whirring noise from the air within the duct, in factories there is no objection from this score.

Beyond the hand ironers there would best be provided another opening faced with wire screening and 12 inches is suggested for this as the local exhaust of 1,500 cubic feet of air at this point should provide perceptible air movement and remove most of the objectionable heat. From the four exhaust outlets, each handling 1,500 c.f.m., it is noted that the fan handles a total capacity of 6,000 c.f.m.

The locker rooms are small, 5x10 feet each, or a total of 1,000 cubic feet contents. A 5-minute air change will be found ample, so, dividing by 5 we arrive at the nec-

essary fan capacity of 200 cubic feet of air per minute. This will be admirably handled by a 12-inch electric propeller type fan running at slow speed.

It is assumed that the outside and factory doors of the office will be opened frequently, acting as air pumps at each opening. Windows will probably be open in summer and may be partially opened if desired in winter. Hence natural ventilation should be sufficient.

In examining the workroom general ventilation plan suggested it is seen that the dry room and locker rooms are ventilated by individual systems. Deducting these contents from the gross contents reduces the net contents to about 45,000 cubic feet. The large enclosed fan exhausts 6,000 c.f.m. and the 18-inch propeller fan 1,000 c.f.m., or, total, 7,000 c.f.m.

Dividing the net public contents by the quantity withdrawn by the two fans it is seen that the theoretical air change in the room is about one complete change every 6 1/2 minutes, which should be ample for good ventilation.

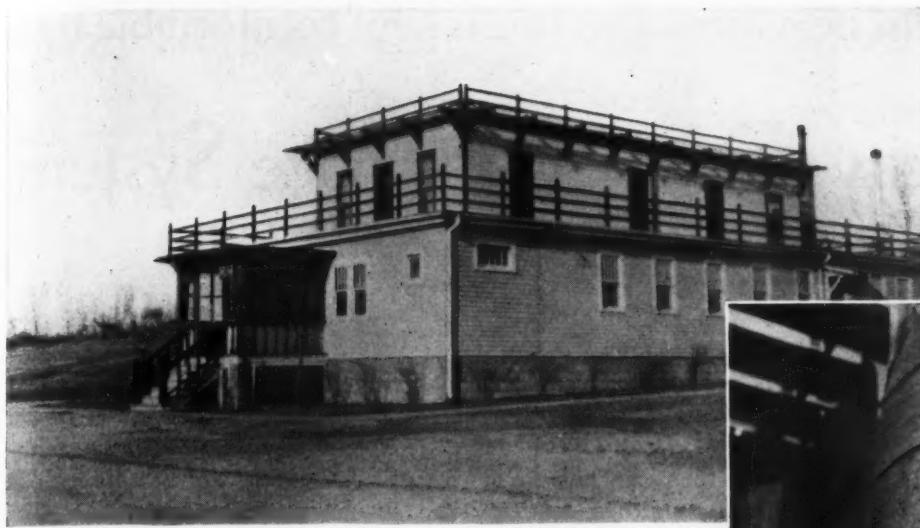
The question may be asked why the dry room, the washer area and the locker rooms were not all handled by a single, large cased fan instead of dividing the work among several. The arrangement here offered permits greater flexibility and power saving. Suppose, for example, one wished to use the washers but not the ironers. If all parts of the laundry were on one system it would be necessary to run the large fan to secure ventilation.

Another reason is that the graduation of the duct, starting with 12 inches diameter and entering the fan inlet as 30 inches, makes a good sized duct at the fan end of the system. Were the duct larger its original cost would be greater and ducts larger than 30 inches take more head room than is desirable.

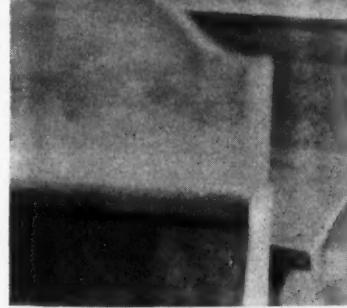
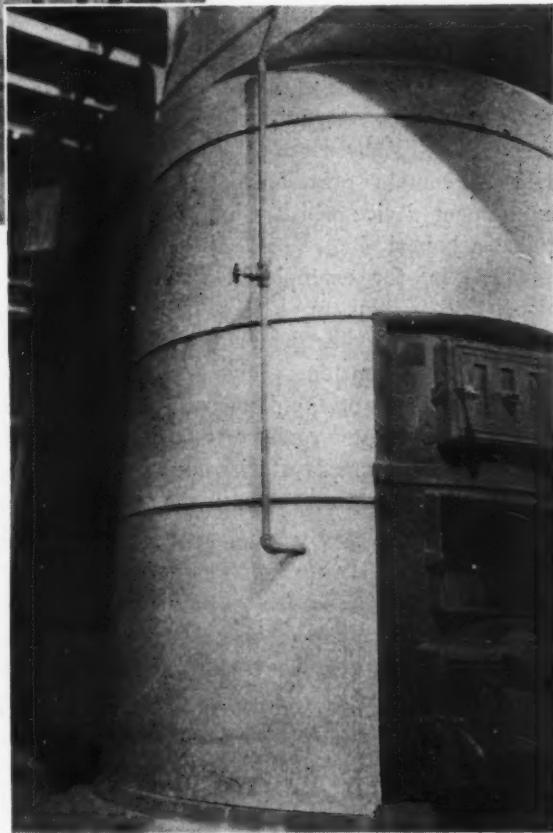
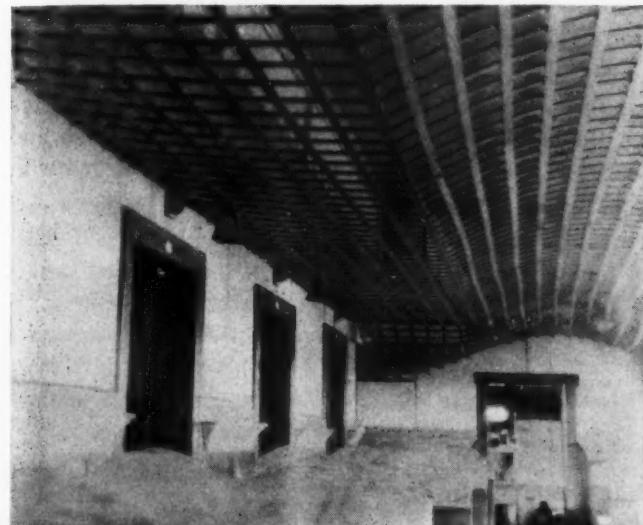
Pipe graduations were made by taking the equivalent area of the end branch in inches, doubling it and adding 20 per cent beyond the second ironer. Then adding the area of the next 12-inch branch connection, adding 20 per cent, and the same for the point between the fan and the hand ironing boards.

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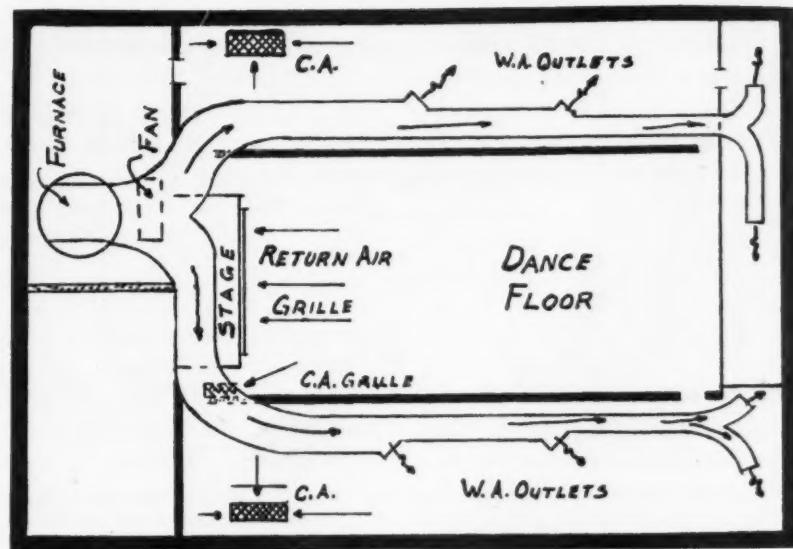
# A Roadside Inn Heated by Warm Air



Frank Merwald, well known Omaha heating contractor, designed and installed the warm air heating system pictured here. The exposure is severe, but during last winter the heating plant worked to perfection. An ingenious method of concealing the duct work was worked out as shown in the picture. Both floors of the inn are heated



The basis of the system is a coal fired furnace and a large fan. Warm air is carried by the two ducts shown and a third riser which goes to the second floor. Cooled air is sucked through a large grille in the stage front and through smaller floor grilles. Warm air circulates from the ducts through the windows shown and into the dance area. Warmer temperatures are maintained in the booths than on the floor. The heater is located on ground level at the rear of the kitchen



**C**Ever hear of a "Hobby House?" They are housed amusement centers. Their big season is winter so they must be warm. This one is kept comfortable by a

## High Velocity, Ductless Furnace System

THE plan which is shown with this article is the layout of a most unusual and interesting amusement hall serving residents of St. Louis. The recreation hall is called the "Hobby House" and is said to contain practically every amusement device which might be called a hobby.

There is, for example, a full-sized, 18-hole miniature golf course over which ultra violet lamps throw a flood of real sunshine. This golf course, as shown on the plan, occupies the large center room. At the rear end there are lavatories and several table games. Along the

front wall are several other table games.

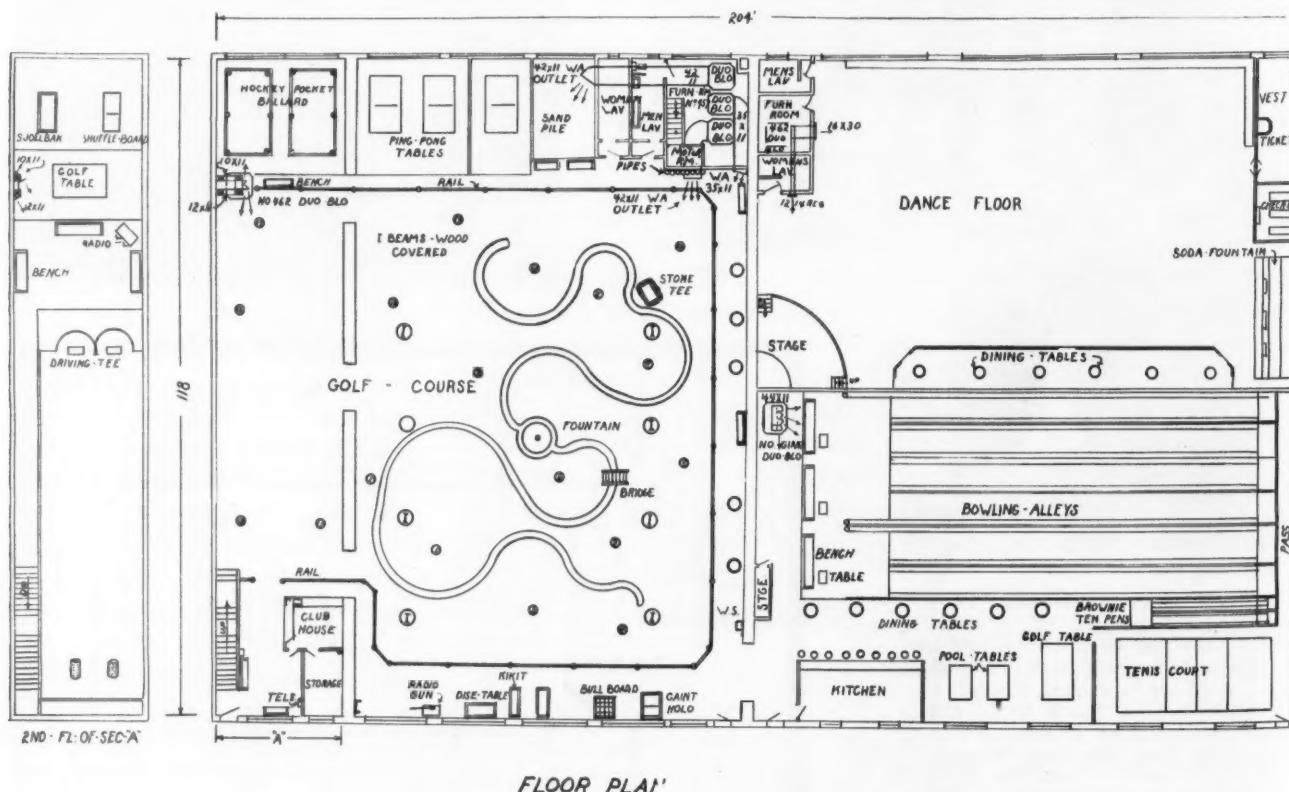
At the rear of the large east room there is a dance floor with a stage for the orchestra, a soda fountain and a long row of dining tables. The front room contains the bowling alleys, a kitchen serving hot sandwiches, billiard tables and a tennis court. A small room on the second floor contains a golf driving net and some small games.

This amusement hall is designed to provide all year round amusement, especially amusement for bad weather and for the winter time. The walls of the building are al-

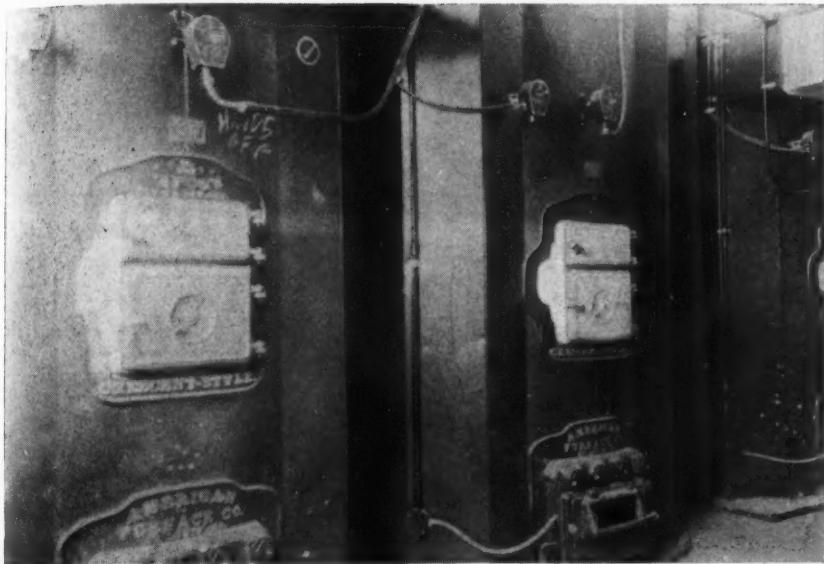
most entirely glass. In ground area the building is 204 feet by 181 feet.

As can be imagined, the heating of this huge hall presented quite a problem. Direct radiation would have given plenty of heat along the walls, but a lack of heat throughout the huge center open spaces. The owner decided that some system of forced air with the heated air introduced throughout the building would be advisable, but hesitated over the necessary duct work for the ceilings are not very high and are, besides, well camouflaged with hanging imitation greenery.

The solution to this problem



This floor plan shows the layout of the "hobby" house. Games and amusements of every description attract the public. The interior must be warm, but not hot. Steam and hot water would have been handicapped—so would have been a duct system. The plant installed meets every requirement.



The largest battery of furnaces are these three back of the miniature golf course. The fuel is oil. Heat from these Duo-Blos is blown at high velocity from small stub trunks. The velocity carries the air clear across the wide floor

came with the adoption of high velocity, high capacity units placed in out-of-the-way corners and having just enough duct work to get the warm air through the walls of the rooms to be heated.

The plan shows where these units were placed, how the air is introduced to the proper rooms and the directions given the nozzles.

In the building there is a cubical contents of 460,000 feet and a heat loss of 1,800,000 B.t.u. per hour.

The system selected was manufactured and designed by the American Furnace Company, St. Louis. The units used are Afco Duo-Blo in three sizes.

For the front, east room where the bowling alleys are located, one large-sized unit with a capacity of 300,000 B.t.u. and a c.f.m. of 6,750 was used with four nozzles pointed to cover all portions of the floor area. This unit was placed on a raised floor so the nozzles are close to the ceiling and shoot the air at high velocity across the room.

In the rear, east room, a smaller unit with a capacity of 265,000 B.t.u. and a c.f.m. of 5,300 was placed in a small room with one very small duct projecting the air toward the front and another large nozzle pointed toward the far outside wall.

Heating these two rooms was

somewhat simplified by the partition which divides them and acts as a backstop for the fast traveling air from the heaters.

In the large, open golf room the only available space for the heaters was in the back corner. Three units placed and directed as shown were used. One unit, the back one, projects the air over the children's sand pile and across the north wall of the room. The middle unit has a single duct which brings the air out through the partition and directs it along the center wall and toward the south wall. The front unit opens through a high wall grille with nozzles arranged to spread the air across the floor toward the south wall.

In addition to these three units which bear the brunt of the heating job, another unit is placed at the west wall at the back, with its supply divided into two portions—one supplying heat through a large double riser to the second floor and the other supplying heat to the golf course.

The second floor riser is carried up above the floor line about eight feet and ends in directed nozzles with grille faces.

Tests conducted with the heating system in operation showed that with the units going full speed, a strong draft of warm air, sufficient

to cause movement in artificial tulips in window boxes along the front windows was noticeable all across the sides of the building away from the heaters. This meant that the high initial velocities used are strong enough to carry the air over the floor with sufficient velocity remaining to be noticeable.

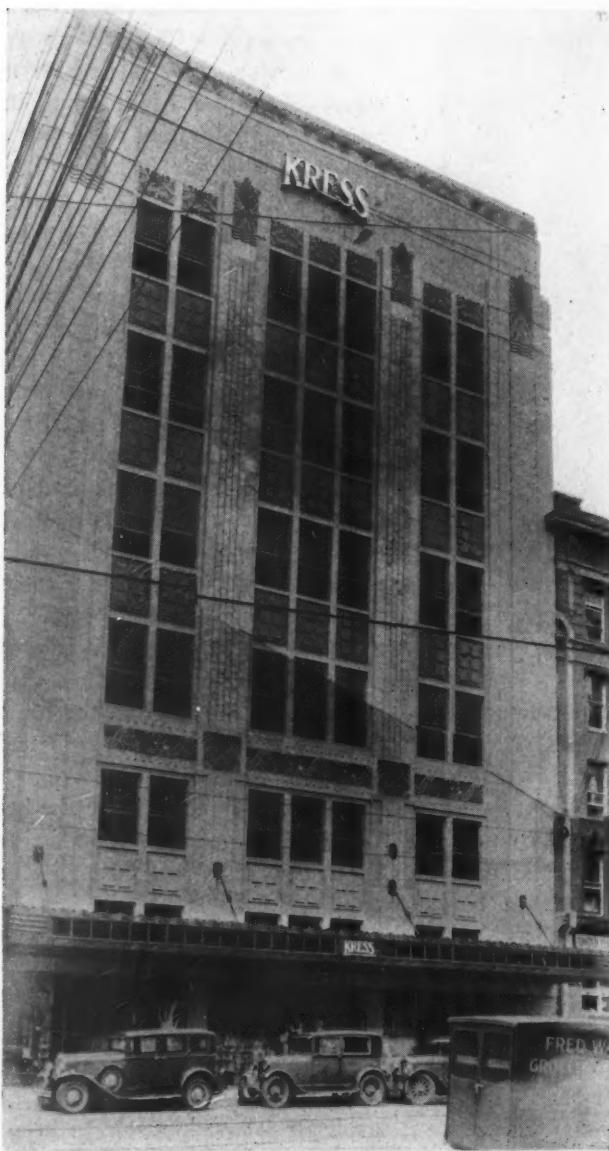
In order to make the heaters fully automatic, oil burners are used with one burner in each unit. The burners operate from thermostats located in the coldest part of each room. The blowers which are above the heaters run continuously once casing temperature is raised.

The return to the fans is through the lower part of the heater casing where the unit sits in an open area as in the bowling alley. Where the unit is concealed the return grille is placed at the floor in the heater room partition. No attempt is made to get a uniform return from all parts of the building since the heat loss is high and most of the heat supplied will be lost through walls and windows.

During the past summer when days were extremely hot and some circulation of air was desirable, these high speed fan systems proved valuable in maintaining comfortable conditions. With the high velocities available it was possible to keep a steady and noticeable flow of air going at all times.

One of the interesting features of operation is the fact that a person walking across the middle of the golf course, even in the direct path of the air stream, seldom realizes how much air is passing across the room. This feature is perhaps accounted for by the law which causes warm air to rise to the highest point and from there settle to the floor. In this golf room, then, there is a stratum of warm air against the ceiling and the force of the air from the fans probably backstops against this rather than flows across the floor as a thick sheet. Upon reaching the outside walls the air comes down the wall.

This system shows the versatility of present day equipment and design in meeting unusual conditions.



# A Highly Ornamented, Hand Made Marquee From Tulsa, Okla.

The building face is highly ornamented with the marquee forming the keynote for this decoration. The marquee is full building width and extends to the curbing. The faces are 10 gage yellow metal

Below is a close-up view of the ornamented faces. These faces are 10 gage yellow metal. The ceiling is "Waltile" panels in yellow metal moldings

the elaborate terra cotta front. The photographs show the building front with all its terra cotta detail and also a closeup of the marquee. These pictures bear out our statement that the marquee forms the key design note for the building face.

The building was designed by Edward F. Siebert of New York and the general contractor was J. W. Van Horn of Tulsa, Oklahoma.

The marquee is unusually long and of heavy appearance. The three sides are highly ornamented in metal work, the material on this

**I**N the Southwest a marquee is not an ornament, but a necessity, for in that part of the country the marquee serves not only when it is raining, but all through the long, sunny summer months when every bit of shade is welcome.

It is not unusual, then, to find down there, some excellent examples of the sheet metal contractor's ability to fabricate and design marquees of an elaborateness found only on the great stores and buildings farther north.

In Tulsa, Oklahoma, the Upton Sheet Metal Works has just finished a marquee which is the basic ornamentation of the building facade, for around the marquee is designed the color and pattern of



marquee being No. 20 gauge yellow metal. The ceiling is Ambler Asbestos cream colored "Walltile" with the panels of tile held in place by mouldings also of yellow metal.

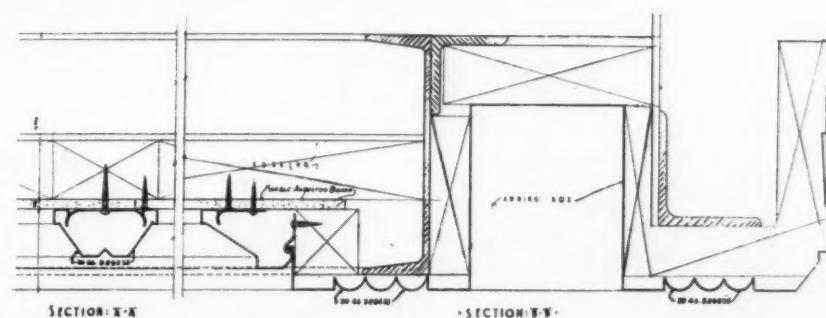
Use of the yellow metal was specified because the final coloring desired was a dark statuary bronze and this metal weathers this color.

The yellow metal facing sections were all hand made by the Upton company in sections ready for application to the framework. The sections after being assembled on the framework were all soldered on the back sides. No stamped work was used.

One of the cross section drawings shows how these sections were assembled on the marquee. The drawing shows that the facing metal lies over wood backup and in these places the sections were fastened directly to the wood with concealed nails at the joints.

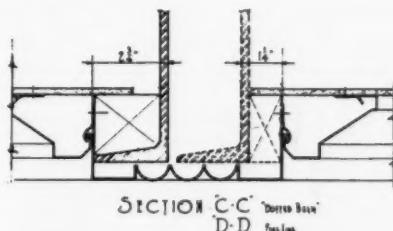
There is at each end and across the street face, an open light box which holds the store name. The construction at these boxes shows on the same cross section drawing. The facings, of quite ornate design, were also hand made and are in keeping with the rather striking ornamentation used over the building.

The ceiling is composed of panels of "Waltile" held in place and framed in moldings of yellow metal. The method of fastening these moldings in place differs from the



This cross section shows how the moldings and faces were to be fastened to the backup. Bronze screws were used instead of the clips.

drawing in that bronze screws rather than clips were used. This detail shows that the center moldings consist of a section shaped like a cut-off pyramid with a formed



Moldings are held in place by bronze screws through turned lips

valley down the center. The moldings are turned into their base and held in place by means of bronze screws screwed into the wood backup. Moldings at the outside edges of the ceiling are held in place in a like manner.

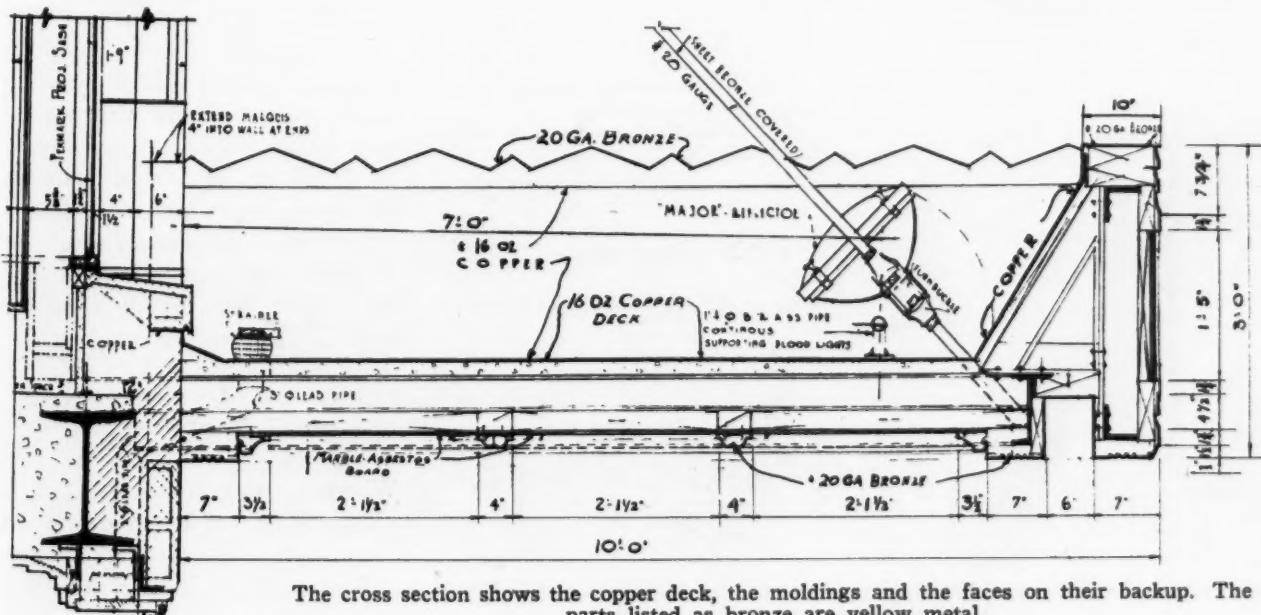
The upper side of the marquee is sheathed in copper which is applied as shown. The small sheets of the roof are all soldered at the flat

seams. The front of the roof is pitched up to bring the roof to the same level as the top of the front face. This copper is held behind the yellow metal which is carried over the ridge of the face and down the back side.

The Upton company, in addition to assembling this interesting marquee on the building, was also contractor for the copper flashings and downspouts and coper turbine ventilators which are on the roof.

In the kitchen for the store restaurant heavy blue annealed canopies are used over the ranges, the dish washer and other heat and steam producing utensils. All these canopies were patterned, fabricated and assembled in the Upton shop. In the kitchen there is also a heat deflector back of the ranges and this is fabricated of Monel metal.

The large sign "Kress" at the top of the building was fabricated from No. 20 gauge Monel by Upton.



The cross section shows the copper deck, the moldings and the faces on their backup. The parts listed as bronze are yellow metal

# FAN BLAST ENGINEERING

By PLATTE OVERTON  
Heating Engineer

Platte Overton,  
c/o American Artisan,  
139 North Clark St.,  
Chicago, Illinois.

Dear Sir:—

Regarding the velocity of air in a duct. If you put a duct two ways and the main duct has 1,000 cubic feet per minute and the velocity is 500 feet per minute, will the velocity in the branches be 250 feet per minute with 500 c.f.m.?

Very truly yours.

## Velocities

equal length or approximately so.

All charts and tables relative to the resistance in ducts are based on round pipes, hence we must find the equivalent round duct for the 36x24 duct. Here on the table (Fig. 6)

the branches and their areas are not proportions in the same manner. It is said that friction loss will vary substantially as the square of the velocity.

It might be said that velocity and "rubbing surface" are the two prime reasons for friction. Note the variables in the following summary:

Size of Duct	Sq. Ft. Rubbing Surface per Lineal Ft.	C.f.m.	Per Cent Rubbing Surface to 7,200 C.f.m.	Velocity	Per Cent Velocity to 1,200
36 x 24	10	7,200	100	1,200	100
20 x 24	7.3	3,600	50	1,080	90
12 x 24	6	1,800	25	900	75
7 x 24	5.1	900	12½	775	65

we find that a 36x24 duct is equivalent to a round duct 32 inches in diameter. We wish to put this duct into two equal ducts. Here we refer to the table (Fig. 7) and find that one 32-inch duct is equal to two 24-inch ducts for equal friction per lineal foot. Note that while we split the air in two equal volume by dividing the volume of air by 2,

Note that while the rubbing surface in the 7x24 duct per lineal foot is over 50 per cent of 36x24, our c.f.m. in the 7x24 duct is but 12½ per cent of the 7,200. Our velocity in the 7x24 duct is 65 per cent of the velocity in the 36x24 duct.

That the shape of the duct is also a factor in resistance is obvious from table (Figure 6). A 32-in. duct is also equivalent to a square duct 30x28 with less than 10 sq. ft. of rubbing surface per lineal foot.

As mentioned in a previous paragraph, we assume that all branches will be of equal length when we use table in (Figure 7). Figure 8 gives us a problem of several branches of equal length and one longer branch with the same c.f.m. To maintain our equal friction per lineal foot this branch must be larger. We determine the size from the formula—

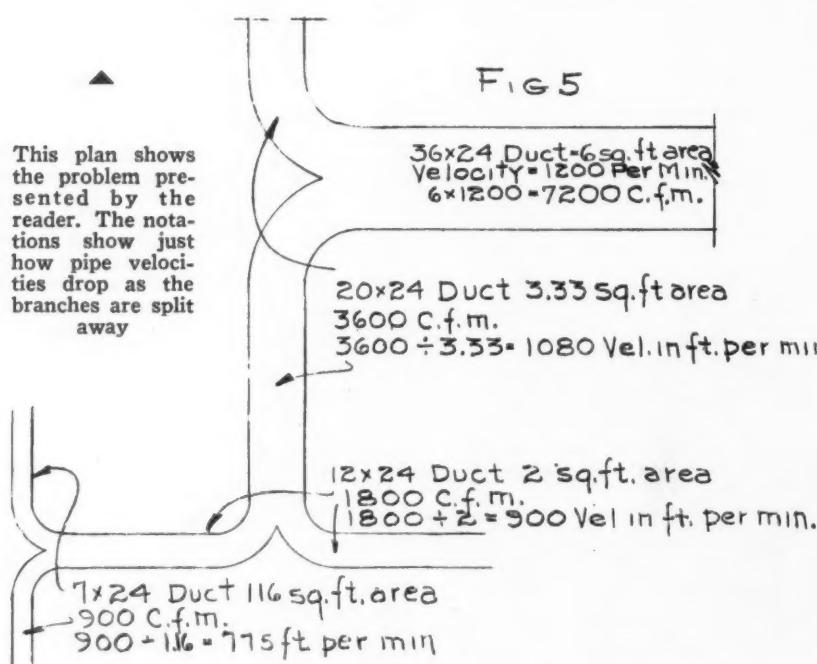
$$\frac{d_2}{d_1} = \sqrt[5]{\frac{L_2}{L_1}}$$

Where

$L_2$  = length of longer run = 20 ft.

$L_1$  = length of shorter runs = 2 ft.

This plan shows the problem presented by the reader. The notations show just how pipe velocities drop as the branches are split away



SIZE RECTANGULAR Ducts	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	6.9	7.6	8.2	8.8	9.3	9.9	10.4	11.0	11.5	12.1	12.6	13.2	13.8	14.3	14.8	15.3	15.8	16.3	16.8	
9	7.3	9.0	8.7	9.3	9.8	10.4	11.0	11.5	12.1	12.7	13.2	13.8	14.3	14.8	15.3	15.8	16.3	16.8	17.3	
10	7.7	8.4	9.2	9.8	10.4	11.0	11.5	12.1	12.7	13.3	13.8	14.3	14.8	15.3	15.8	16.3	16.8	17.3	17.8	
11	8.0	8.8	9.6	10.2	10.8	11.3	11.8	12.4	12.9	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	
12	8.3	9.2	10.0	10.7	11.4	12.0	12.6	13.2	13.8	14.4	15.0	15.6	16.2	16.8	17.4	18.0	18.6	19.2	19.8	
13	8.7	9.6	10.4	11.0	11.6	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	
14	9.0	9.9	10.8	11.3	11.9	12.5	13.0	13.6	14.2	14.8	15.4	16.0	16.6	17.2	17.8	18.4	19.0	19.6	20.2	
15	9.2	10.3	11.1	11.5	12.7	13.4	13.8	14.1	14.7	15.3	15.9	16.5	17.3	17.9	18.6	19.2	19.8	20.4	21.0	
16	9.5	10.5	11.4	12.3	13.1	13.8	14.5	15.2	15.8	16.5	17.1	17.6	18.4	19.0	19.7	20.3	20.9	21.5	22.0	
17	9.8	10.8	11.8	12.6	13.5	14.2	15.0	15.7	16.3	17.0	17.6	18.2	18.9	19.5	20.1	20.8	21.4	22.0	22.6	
18	10.0	11.1	12.1	13.0	13.8	14.6	15.4	16.1	16.8	17.4	18.1	18.7	19.3	19.9	20.5	21.0	21.6	22.2	22.8	
19	10.2	11.4	12.4	13.3	14.2	15.0	15.8	16.5	17.3	18.0	18.6	19.3	19.9	20.5	21.0	21.6	22.2	22.8	23.4	
20	10.5	11.6	12.7	13.6	14.5	15.4	16.2	17.0	17.6	18.4	19.0	19.7	20.3	20.9	21.5	22.0	22.6	23.2	23.8	
21	10.8	11.9	13.0	13.9	14.8	15.7	16.5	17.3	18.1	18.9	19.5	20.2	20.8	21.4	22.0	22.6	23.2	23.8	24.4	
22	11.4	12.6	13.7	14.6	15.4	16.2	17.0	17.8	18.5	19.3	20.0	20.8	21.5	22.2	22.9	23.5	24.0	24.7	25.3	
23	11.8	13.0	14.2	15.0	15.8	16.6	17.4	18.2	19.0	19.8	20.5	21.2	21.9	22.6	23.3	24.0	24.7	25.4	26.0	
24	12.0	13.3	14.5	15.2	16.0	16.8	17.6	18.4	19.2	19.9	20.6	21.3	22.0	22.7	23.4	24.1	24.8	25.5	26.2	
25	12.2	13.5	14.8	15.9	17.0	18.0	19.0	19.9	20.7	21.5	22.4	23.1	23.9	24.6	25.3	26.0	26.7	27.3	28.0	
26	12.6	13.9	15.2	16.5	17.5	18.5	19.5	20.3	21.0	21.8	22.2	23.1	23.9	24.7	25.4	26.1	26.8	27.5	28.2	
27	12.9	14.1	15.6	16.9	18.0	19.1	19.3	20.1	21.1	22.0	22.9	23.8	24.6	25.4	26.2	27.0	27.8	28.4	29.1	
28	13.1	14.3	15.5	16.8	18.0	19.2	19.4	20.1	21.0	21.8	22.6	23.5	24.3	25.1	25.9	26.7	27.5	28.3	29.1	
29	13.2	14.7	16.1	17.3	18.5	19.7	20.7	21.6	22.6	23.5	24.3	25.2	26.1	27.0	27.7	28.5	29.3	30.1	30.9	
30	13.6	15.1	16.4	17.7	19.0	20.1	21.2	22.2	23.2	24.2	25.1	26.0	26.8	27.7	28.5	29.3	30.0	30.8	31.5	
31	13.8	15.4	16.7	18.0	19.3	20.4	21.6	22.6	23.6	24.5	25.4	26.3	27.2	28.1	28.9	29.7	30.5	31.3	32.0	
32	14.0	15.6	16.9	18.2	19.5	20.6	21.8	22.8	23.8	24.7	25.6	26.5	27.4	28.3	29.1	29.9	30.7	31.5	32.3	
33	14.2	15.8	17.0	18.3	19.6	20.7	21.9	22.9	23.9	24.8	25.7	26.6	27.5	28.4	29.2	29.9	30.7	31.5	32.3	
34	14.5	16.1	17.6	18.9	20.3	21.6	22.7	23.8	24.8	25.9	26.9	27.9	28.8	29.6	30.7	31.4	32.2	33.0	33.8	

Fig. 6—Above is a table of circular equivalents of rectangular and round pipe based on resistance. Pick out the sizes with the author. Right is a table showing equalized pipe sizes for equal friction per running foot of pipe. The notation explains just how to use the table

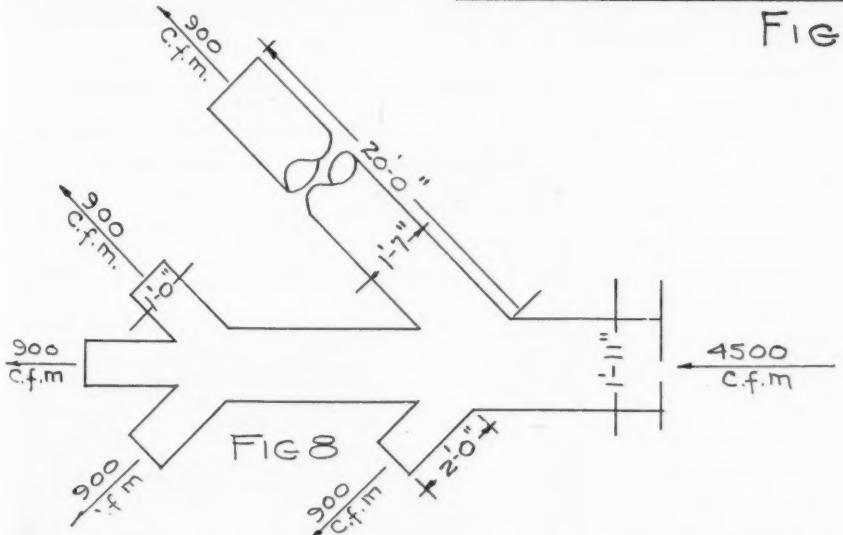
$d_2$  = diameter of longer run =  $X$ .

$d_1$  = diameter of shorter runs, 12 in. or 1 ft. 0 in.

Hence we must extract the 5th root of  $L_2 \div L_1 = 20 \div 2 = 10$ . The 5th root of 10 = 1.585.

Hence we have  $d = d_1^5 \sqrt{\frac{20}{2}} =$

$d_2 = 1 \times 1.585 = 1.585$  feet in



diameter or duct 19 in. in diameter.

While not directly interested in these articles with any but total or final pressures, we will discuss a few of the various "loss" conditions commonly found in fan blast installations.

Figure 9 is a converging nozzle. This nozzle is frequently used in

Equalization of Pipe Diameters

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
28	16	21	26	31	36	41	46	51	56	61	66	71	76	81	86	91	96	101	106
19	24	29	34	39	44	49	54	59	64	69	74	79	84	89	94	99	104	109	114
18	22	27	32	37	42	47	52	57	62	67	72	77	82	87	92	97	102	107	112
17	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
16	18	22	27	32	37	42	47	52	57	62	67	72	77	82	87	92	97	102	107
15	16	19	22	25	28	31	34	37	40	43	46	49	52	55	58	61	64	67	70
14	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51
13	14	15	17	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

factory and garage installations where round ducts are used. Where the length "A" is moderately angled there is very little pressure loss. Here the static pressure will be less in "C" and the velocity pressure higher.

The diverging nozzle (Figure 10) has a wide range of use in the fan system field. It is used throughout the average installation. This nozzle is used in practically all junctions of the grille to the duct to lower

FIG. 7.

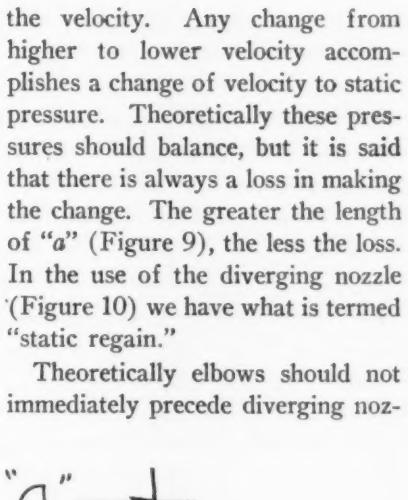
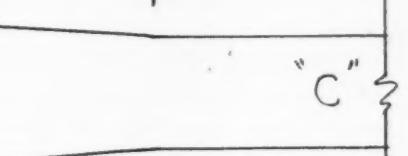


FIG. 8.

FIG. 9.



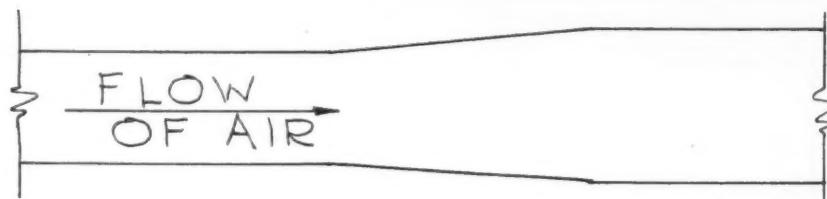


FIG. 10

zles, but we know that in actual practice this is impossible. On mechanical systems in residences the runs are short with many elbows and branches. However, in such installations pressures are ordinarily low, even with velocities at 700 to 1,000 ft. per minute in trunk lines.

From the diverging and converging nozzles we see the reason for diverging nozzle between the fan and the heater and the converging nozzle between the returns and the

Fig. 9 on the preceding page and Fig. 10, above, show converging and diverging nozzles. The text explains what happens when moving air strikes one of these changes in duct

Fig. 11 illustrates an application of nozzle effect. This arrangement lowers static pressure and increases velocity pressure

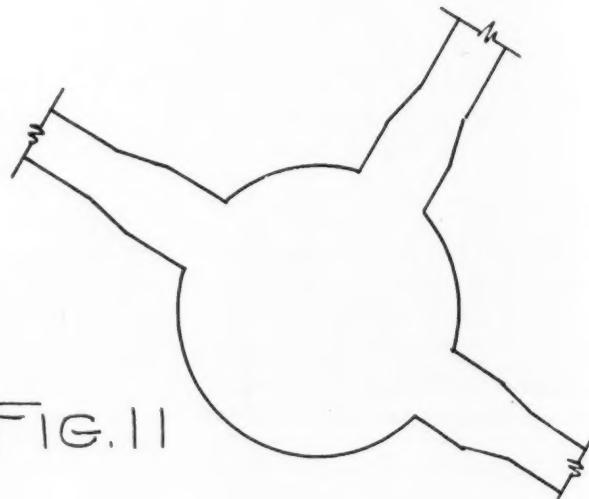


FIG. 11

# Here's Another Heating Problem

**J**UST to give you boys a chance to sharpen your pencils again, here is another problem, this one dealing with the heating system in a small factory building.

Here is what the contractor says about the installation:

"This system does not function as it should. The trouble seems to be that the plant doesn't furnish enough heat.

"The plan shows a 33-inch return air pipe leading from one large floor grille to the fan. When the system was first put in there were four 18 by 30-inch floor grilles along the east wall and two same size grilles along the north wall. These were not connected to the fan, but let the air from the factory fall into the basement where the fan with a housing opening picked it up.

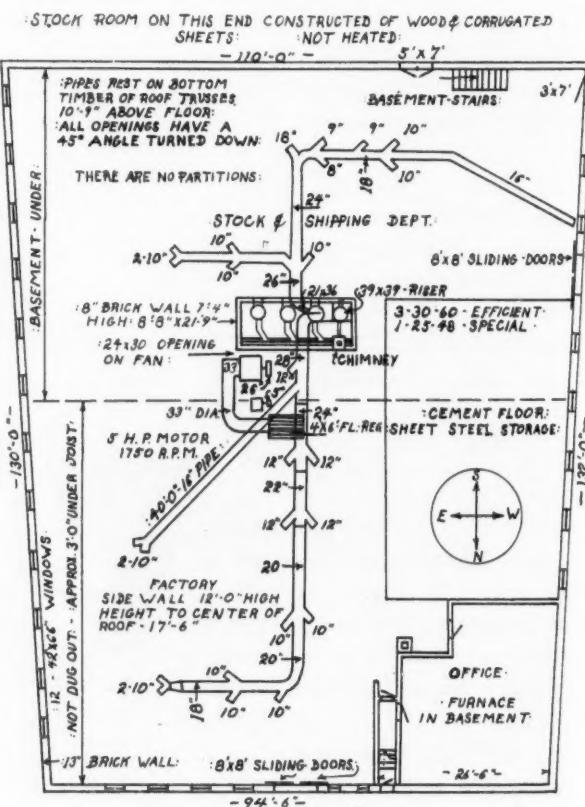
opening from fan to furnace room is 24 by 30 inches. Heat is taken off the furnaces through one 39 by 39-inch riser which connects to the two-way piping system. The heat pipes are rested on the bottom chords

"When these grilles were in use the fan got air, all right, but we never seemed to be able to detect flow of air through the grilles.

"The building is constructed of brick with a paper roof laid on

trusses. There are four 6 by 8 feet, one 5 by 5 feet, one 6 by 12 feet, one 3 by 7 feet skylights in the roof. There is approximately 190,000 cubic feet of space to be heated.

the floor. There is no name on the blower, so I can't say what it ought to do." Send in your solutions and sketches if you will.



# A Sprinkling Can Pattern

By L. F. HYATT  
*Contributing Editor*

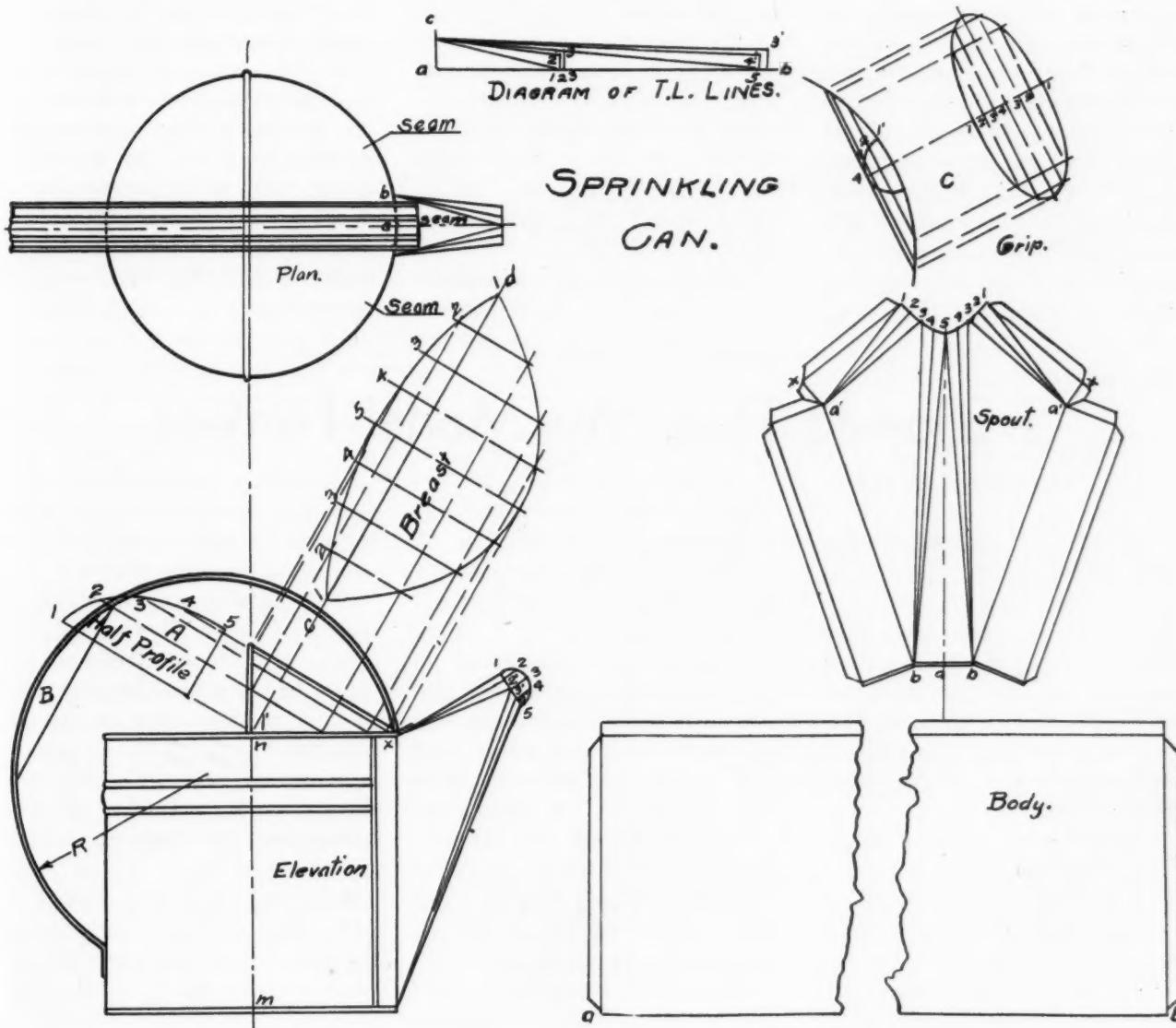
THE shop man often wishes to lay out a pattern for a sprinkling can. A suitable size is about  $8\frac{1}{2}$  in. in diameter by  $8\frac{1}{2}$  in. high. The pattern is developed partly by triangulation and partly by parallel line developments.

Begin the pattern by first drawing the plan and elevation carefully and then drawing the stretchout line  $a b$  of the body. The seams joining the spout and the body are  $1\frac{1}{4}$  in. from the spout. This makes it possible to seam it on a common grooving machine or by hand. The

length of the body is, of course, equal in length to the distance from seam to seam around the body. The allowances for grooved seams and a wired edge are added. Because of lack of space the body could not be completed and is shown broken.

A half profile of the breast is shown at A representing the edge of the breast as one looks at the can. Divide the curved line into four parts and from each point draw a line parallel with the slope of the breast as shown on the elevation view. Now from 1' and at

right angles to the slope of the breast draw the stretchout line  $c d$  and upon this line step off the distances 1, 2, 3, 4, 5, 4, 3, 2, 1 found on the half profile view A. From the points on the half profile draw lines of indefinite length intersecting the vertical line of the breast and the horizontal line of the body. From these points of intersection draw lines parallel with  $c d$ . Now draw lines at right angles to the stretchout line  $c d$ , through the points previously stepped off and through the points of intersection



draw the curved lines describing the outline of the breast. On one side add the allowance for the wire and on the other add the allowance for fitting onto the wire around the body. No pattern is shown for the handle. This is, of course, done by parallel line development. The two edges may be double hemmed or wired but wire in the edges adds decidedly to the strength of the handle, and a bead running midway between the wire as shown in the plan adds to the appearance of the completed can.

The grip B, as the name signifies, is for the purpose of getting a better hold on the handle. A small section of the handle is drawn at C with the cross section view of the grip. This is numbered, as shown, 1, 2, 3, etc. The stretchout line is drawn at right angles to the straight side of the grip and the spaces on the profile, 1, 2, 3, 4, etc., are stepped off on this line. Draw lines through these points on the half profile intersecting the arc representing the handle proper. From the points of intersection of the arc of the handle and the above mentioned line draw lines parallel with the stretchout lines, and through the points of intersection of the two groups of lines draw the curved

line describing the outline of the grip.

To obtain the true length of lines for the spout first draw the line *a b* and at the end of the line draw the line *a c* perpendicular to *a b*. On the perpendicular line *a c* step off the distance *a b* found on the plan. Now from the elevation view take the distance from 1 to x and step it off on the line *a b* locating point 1. Draw a line from this point to *c* thus obtaining the true length. Now take the distance from 2' to x and step it off on the line *a b*. From 2 step off the distance 2' to 2 found on the half profile of the spout on the elevation view. Draw the line 2' to *c*. Do likewise with 3, and the remaining lines 3, 4, 5 on the lower part of the spout as shown on the diagram of T. L. lines. After the true length of all the lines has been obtained, begin the pattern by stepping off the distance *a b*, found on the plan, on each side of the center line locating *a b* of the pattern. Now with the distance 5-*c* found on the diagram of lines, and the two points *b* as centers strike arcs intersecting each other and locating point 5. Next take the distance 4-*c* and again using points *b* as centers strike arcs of indefinite length. Now from the half profile

of the spout, elevation view, take the distance 5-4 and with 5 as a center strike arcs intersecting the arcs just drawn locating point 4. Next take the distance 3 to *c* from the group of short lines and with point 4 of the pattern for the spout as a center, strike an arc of indefinite length. Next take the distance *m-n* on the elevation, which is the height of the can, and with points *b* of the pattern as centers strike arcs intersecting the arcs just drawn locating points *a'* of the pattern. Continue with the other short lines of the pattern completing the small triangle. Now take the true length of the seam line 1 to *x* found on the elevation and strike arcs from points 1. Again take the distance *a b* found on the plan and with points *a* on the pattern strike arcs intersecting the arcs just drawn completing the triangles at the top of the spout. Draw the rectangles representing the distance *b* which is from the bend *b* of the spout to the seam. This should be about  $1\frac{1}{4}$  in., making it easy to seam the spout to the body. The bottom is drawn with an allowance for a double seam. The pattern for the rose may be developed by the metal craftsman or a commercial one may be purchased.

## I Showed Him My Model Furnace

(Continued from page 19)

The hot water plant which was removed was fired with an oil burner. The burner was taken out because of noise, but another will probably be used later.

Humidity was all-important in the doctor's mind so a mist type humidifier and a grease cloth dust collector were installed to remove all dust and provide plenty of moisture. So far this arrangement has worked satisfactorily, but Mr. Hubertz says that these pieces of equipment are only temporary and that improved equipment will undoubtedly be purchased later.

The heating system is designed on a gravity basis and has all round

pipes. The furnace and the pipes were all covered with air cell paper with the exception of the cold air which had the joints wrapped.

This installation was sold at a very nice profit. It was sold, entirely, Mr. Hubertz believes, because he has a good heating plant in his own home and because he uses his own plant to sell others. Incidentally, since this job was completed, the doctor, at his expense, had Mr. Hubertz revamp the system of a patient who couldn't afford to have the work done himself. He has had a garage he owns heated with warm air and sent several prospects to Mr. Hubertz.

12 inches lined and a 12 by 14-inch face was used.

The master's bedroom which is above the library did not have a partition deep enough to run a stack. There was, however, a large bookcase against the inside wall so a special open stack was made and painted to match the bookcase. This riser feeds registers in the master bedroom and one of the other smaller rooms.

A second open stack was run up through the lower lounge to feed three flat runs between floors for the other second floor rooms. These rooms were not heated at first, but have now been connected up but not used except to test the registers.

# GRAVITY EXHAUST VENTILATION

## Ventilating Chicken Houses

In attempting to offer a solution for the dampness in the poultry house litter that Mr. Wendell mentions, I am assuming that no water gets into the litter either through roof leakage, running in from the outside, or overflow from drinking tanks. It is always advisable to check over possibilities of this kind carefully.

This damp litter may be due to any one of four things, namely (1) absorption of water from the floor, (2) failure to change the litter often enough, (3) overcrowding, or (4) insufficient or improperly distributed ventilation.

The floor should be absolutely dry at all times. A solid dirt or concrete floor will absorb water from the ground and release it constantly into the poultry house. This will make the litter damp and also is likely to result in too high a humidity in the inside atmosphere, causing excessive condensation on window, ceiling and roof surfaces.

The amount of water that such a floor will absorb from the ground will depend largely on the ground under it. Some ground is naturally damp, being, you might say, "spring fed." Any ground, however, has enough moisture in it to bring into the house undesirable dampness.

This can be proved by turning a tub upside down and throwing enough dirt around the edge to make it air-tight. If you take the tub up in a few hours you will find that the ground underneath it is damp. This is due to capillary attraction, the same thing that the tin-

By PAUL R. JORDAN\*

Paul R. Jordan,  
c/o American Artisan,  
Chicago, Ill.

Dear Sir:

I want to better the ventilation in a large chicken house. The building is square with a flat pitched roof. Air movement inside is not uniform resulting in cold air pockets. The floors are cold and the litter is usually damp. If possible I would like to change the system so that it can be used for heat removal also.

Yours truly, \_\_\_\_\_.

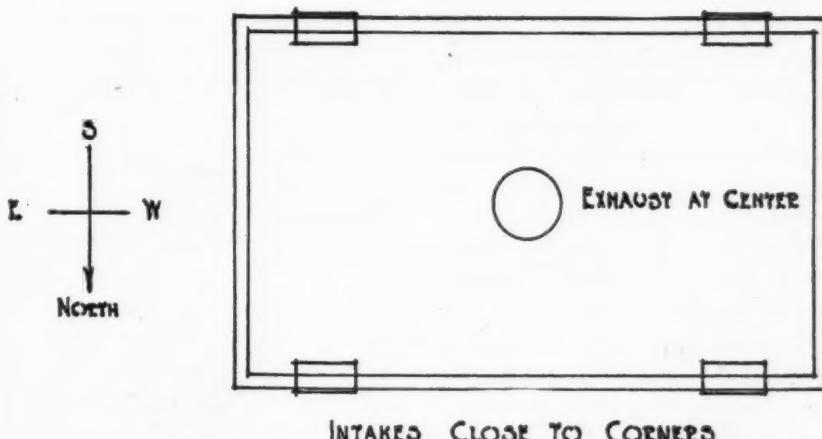
ner or roofer has to guard against in construction work. There is no

necessity at this time to go into this matter of ground characteristics, because no matter what the ground characteristics are, the floor must be insulated against moisture to be right. A wood floor built over the other floor with an air space in between will serve the purpose.

Another method for fixing up an old floor is to weatherproof the top of the old floor with roofing or any other waterproof substance and then put a concrete or other floor on top of it. I believe that a thin layer of asphalt or tarvia is in itself both a waterproofer and a floor surfacer.

In building a new poultry house it is probably best to build the floor up somewhat above the ground line and then to ventilate the floor with porous tiles running under the floor and opening out just above the

### AYOUT FOR SMALL HOUSE



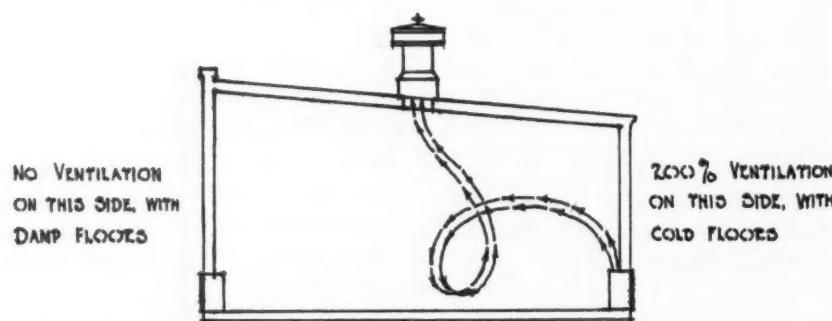
The location of intakes and exhausts is highly important. The intakes should be on outside walls with the exhaust in the center. Air moves from the intake evenly over the floor and out the exhaust. Cold spots result from poor location of ventilator units

\*The Paul R. Jordan Co., Indianapolis, Indiana.

ground line. Four-inch tiles run about every four feet will take care of it.

The second possible factor influencing litter dampness, namely the changing of the litter, brings us to a subject somewhat out of the jurisdiction of the sheet metal trade. The frequency with which litter must be changed is, of course, dependent on the type of the litter and the thickness with which it is spread. This is a matter to be worked out by experience and in conjunction with advice from poultry specialists. Mr. B. DeVries, poultry specialist of the Washburn-Crosby Company, is considered an authority on such subjects. His address is 7641 Jackson Boulevard, Forest Park, Illinois. You can rec-

#### UNREGULATED INTAKES



If the intakes are not regulated, a heavy wind from one side can create too much air movement on one side and no movement on the other. The regulation should be automatic

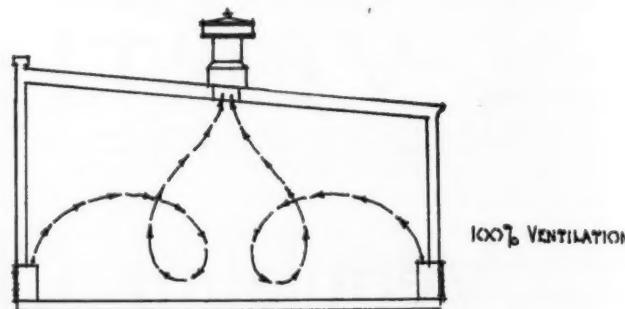
ommend his findings if you think the litter is causing undue trouble.

The third factor, overcrowding, is also a poultry matter and I cannot give you anything except the generally accepted standards. For either laying stock or breeding stock I believe 3 square feet of floor space for each fowl is usually considered necessary. The breed and size of the chickens naturally has some influence on this figure. I am of the opinion that necessary floor space, as well as necessary ventilation should be worked out on the basis of poundage rather than numbers, but the numerical standard is the generally accepted one at the present time. It should be applied with common sense, and common sense tells us that a big chicken needs more room than a little one.

For proper ventilation the intakes must be regulated. Here air movement is uniform over the floor. This is ideal ventilation

The fourth factor, ventilation, is an important factor in that without it no poultry house can house healthy chickens. The other attributes of proper ventilation are more important than dry litter; but damp

#### REGULATED INTAKES



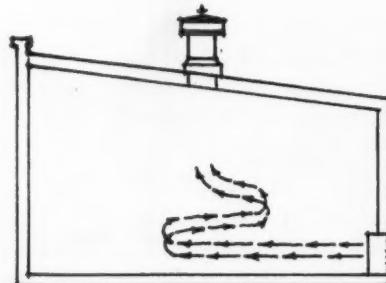
cient or poorly distributed, or both. As to the amount of ventilation necessary, one good 24-inch ventilator used in conjunction with four 10 by 15-inch intakes, properly designed, and properly located, will take care of 800 square feet of floor space in the winter. For summer heat removal, which requires somewhat greater capacity, this amount of equipment will take care of 540 square feet. One good 18-inch ventilator, and two good 10 by 15-inch intakes, properly designed and properly located, will take care of 450 square feet of floor space for winter ventilation or 300 square feet for summer heat removal.

The above figures are based on well designed, manufactured ventilators. I have run across so many instances where poorly designed and insufficient equipment was responsible for ventilation failures on poultry houses that I do not hesitate to come out with a flat statement, "Buy recognized, manufactured exhausts and intakes and in-

litter, as an indicator of poor ventilation, calls attention to poor ventilation when other more important considerations might be entirely overlooked.

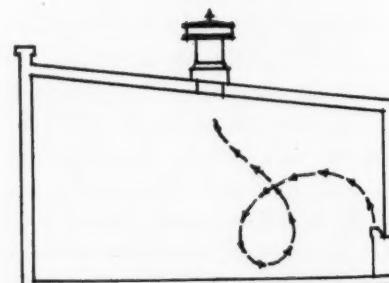
Ventilation may be either insuffi-

#### UNDIRECTED INTAKE



Well designed intakes guide the incoming air upward rather than across the floor. Too much air movement over the floor makes the floors cold and injures chicks

#### DIRECTED INTAKE



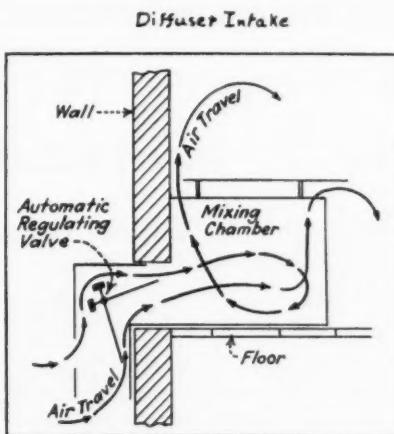
stall them according to the manufacturer's recommendations."

If electric current is available, fan ventilators may be used and may be quite attractive to the owner. They will handle about four times as much air as gravity ventilators on chicken house installations. A 24-inch fan ventilator will take care of sixteen 10 by 15-inch intakes. It is desirable to increase the number of intakes rather than to readjust their regulation. While it is possible to take in the necessary amount of air through a smaller number of intakes, this necessarily results in the speeding up of the intaken air. This is bad. Air may be exhausted at a high velocity under certain circumstances without causing floor drafts, but to bring it in at a high velocity is always dangerous.

For distribution purposes it is usually advisable to use smaller units. One 18-inch fan ventilator will match up eight 10 by 15-inch intakes. This will usually work out better than the larger units.

Distribution of ventilation in its important aspects applies entirely to the incoming air; but the placing of exhausts determines the direction of air travel inside of the building, and it is therefore quite important. Intakes should be on the outside walls. Exhausts should be at the center. In the case of a long, narrow building with many intakes and several exhausts, the intakes can line the front and back walls, while the exhausts come through the roof and tap into the central space.

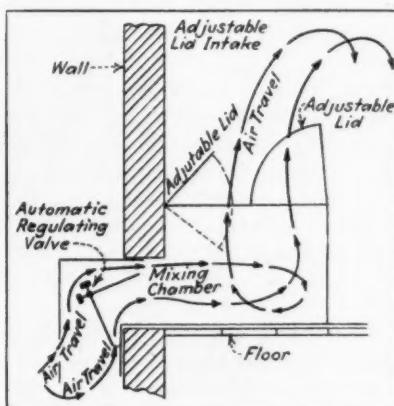
Whether the exhaust should be taken from the floor or the ceiling depends primarily on whether or not the building is heated. If the building is unheated the exhausts may open at the ceiling or roof. In this case storm band stationary ventilators may be used, although rotaries are better. If the building is heated, then heat conservation demands that flues be run to within a few inches of the floor. They should be kept above the floor high enough to insure an opening around the flue equal to the sectional area



Here is a cross-section of a satisfactory automatic regulating intake box. No control over air movement is provided

of the flue. This means, in general, one-fourth of the flue diameter. In other words, a 24-inch flue should come up at least six, and preferably seven or eight inches above the floor. This latter figure will give you a little factor of safety against the piling up of litter and the blocking of the air flow by fowls or other things. Where the flue comes down close to the floor a rotary ventilator or a fan ventilator should be used as an assurance against back-draft. The fan ventilator, of course, is more positive.

The intakes should be located so as to eliminate dead air pockets. They should be equipped with automatic regulation so as to nullify the disastrous effects of outside wind. A carefully laid out ventilating system based on uniform outside wind,



This box is better because it has lids which will direct the movement of air and also regulate the amount of air

either as to direction or velocity, is, of course, impractical. The automatic regulating valve should be so balanced as to cut down the intake through the windward side of the building to a volume a little bit less than that coming in through the leeward side of the building. This will offset seepage and also the chilling effect of the wind.

There are two practical types of intakes, namely the adjustable lid type and the diffuser type. The diffuser type is simply a box with a baffle set somewhat above the open top. This baffle deflects the air down onto the floor. It is for use underneath roosts where an intaken column of air directed upward would hit the fowls. This type of intake should not be used, excepting where it is absolutely necessary.

The other type of intake, namely the adjustable lid type, is capped with lids which can be adjusted to control the direction of the incoming air current. This air current should not be allowed to sweep the floor. Neither should it be allowed to hit the roof, or ceiling. If it hits the floor, you will have cold spots and a floor draft, which means sick fowls. If it hits the ceiling it will be deflected back onto the floor, which again means cold spots and floor drafts. The ideal condition is easily obtainable by directing an automatically regulated current so that it flows well up into the warm upper stratum of air below the ceiling, where it will temper before it filters down to the breathing zone. This can only be done with automatic regulation and adjustable lids, but can, nevertheless, be accomplished in an entirely satisfactory and practical manner, and at a cost not prohibitive to the poultry man.

While the subject of insulation has no direct bearing on the matter of litter dampness, it might be worthwhile to call attention to the fact that both the roof and the walls should be properly insulated in either a heated or an unheated poultry house. Also that walls and windows should be practically airtight. Also that all exhausts and flues should be dampered.

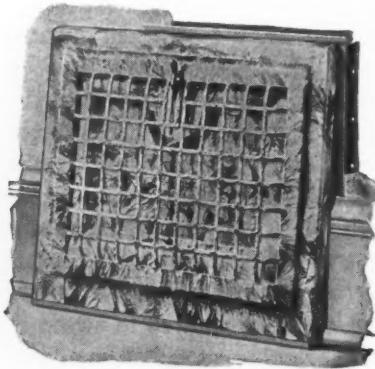
# NEW ITEMS and NEWS ITEMS

## From and about the Manufacturers and Jobbers

### Auer Register Co. "Eye-Appeal" Register

Auer Register Company, 3608 Payne Avenue, Cleveland, Ohio, announces a line of registers which are the first of their kind and claimed to be unique in finish but thoroughly in keeping with the 1931 demand for "eye appeal" in design and coloring.

These new registers have the face and valve finished in a chromatic



plated, anti-tarnish finish which is immune to heat and moisture.

The finish design is very striking and different from anything on the market. Contractors looking for something new in register finishes are invited to send for samples or free inspection.

The registers can be had in Black Pearl, Orchid, Seafoam Green, or Spanish Gold finishes. The line is to be known as the Auer-De-Lux.

The frame is installed when the roughing-in is done. It has an inner frame which extends into standard size stack-heads, and, being rigidly nailed to the studding, protects the box and saves an extra trip to the job.

### Beg Your Pardon!

In the September 28 issue in the New Items and News Items section we gave the address of the Schwab Furnace and Manufacturing Company as Cleveland, Ohio.

The company's correct address is Milwaukee, Wisconsin.

Any dealer who wrote for information about the company's new incinerator and had his mail returned should address the firm at Milwaukee.

We're sorry!

### Columbus Humidifier Co. Product Said to Have Many New Features

The Columbus Humidifier is designed to meet the exacting requirements of distributing vapor in proper proportion to all rooms in the house. The Columbus Humidifier is pot-shaped, with a cover, with spaced ports or vents and distributes the vapor above the water level evenly.

The pan, cover, and valve body are made of the best gray cast iron to withstand corrosion in water and heat. Every moving, working part is bronze, manganese, copper, or brass.

The valve used in the Columbus Humidifier is a successful intermittent, float control valve. Of sturdy construction, it opens and closes positively. Opening quickly, it floods water through in a stream and then closes rapidly when the proper level of water has been obtained. The valve is located on the top of the humidifier and outside the furnace bonnet. It is fin-cooled—having an abundance of heat radiating surface—and never becomes hot enough to affect the gasket or precipitate lime.

The temperature inside the humidifier can be no higher than the boiling point of water.

Particular care has been taken to design and build a lasting trouble-free float. The float used is made of heavy copper, tightly seamed against water-logging, and withstands 1,300 degrees of heat.

An overflow opening is provided amply large enough to carry away by gravity any water that will flow through the  $\frac{1}{4}$ -inch tubing under pressure.

The Model A Columbus Humidifier has an inside diameter of 12 inches and is the correct size for the average six or seven-room house. Each humidifier is securely packed in a corrugated shipping container, weighing 31 pounds packed. The price is \$13.75 each f.o.b. Columbus, Ohio, less 2 per cent 10 days, net 30. Quantities purchased during the year starting from June 1 to June 1st will receive a rebate in cash at the end of the 12-month period. These rebates can be ascertained by writing the manufacturer. Literature and full details are also available.

### E. W. Sidwell Joins Armstrong Furnace Co.

The Armstrong Furnace Company of Columbus, Ohio, has issued an announcement stating that E. W. Sidwell, formerly sales manager for the Beckwith Corporation, Dowagiac, Mich., an experienced Round Oak man, has been employed as sales manager for their company.

Mr. Sidwell (or "Sid" as he prefers to be called) is an experienced warm



air heating man and has had charge of sales for both cast iron and steel lines of warm air furnaces. He is a practical furnace man having been connected with the sale and installation of warm air furnaces for twenty years or more and started out as a young man by actually installing furnaces.

### Michigan S. M. & Roofing Ass'n New Roster

Michigan Sheet Metal and Roofing Contractors' Association has just finished printing and will now distribute their 1931-1932 roster of active and auxiliary members.

The roster is printed in the form of a small, pocket-size book. The Officers, Directors, Committees and Auxiliary Officers and Committees are shown in the fore part of the book.

Following this is the membership by cities. Where necessary complete street addresses are given.



***The Outstanding  
NET-Profit Producer  
in the Heat Control Field***



**FIRST:**

Because it is priced to sell to that vast market constituted by folks of moderate means.

**SECOND:**

Because you can't beat its performance at any price.

**THIRD:**

Because it is 100% DEPENDABLE—never requires servicing. Your entire profit, exclusive of selling cost, is NET profit.

To cash in to the full extent on the big market waiting for automatic heat control, standardize on the H & C.

**Ready for Immediate Delivery**

*See your jobber at once. Write us for information, sales helps, etc.*

**DEALER PRICE \$24.50**

*Including every necessary fitting. Sells for \$45.00 Plus Installation*



**HART & COOLEY MFG. CO.**

General Sales Office:

61 W. KINZIE ST.

CHICAGO, ILL.

**H & C AUTOMATIC HEAT CONTROL**

*Say you saw it in AMERICAN ARTISAN—Thank you!*

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**AIR  
CONDITIONING  
DE LUXE**

**The AKRON  
AIR BLAST**

*A Single Unit  
Which Gives 100%  
Air Conditioning*

**A**RE you staying abreast of the times? Are you in a position to supply your prospects a complete air condition plant as a single unit?

**I**F you want to lead in the warm air heating industry then let us give you full particulars about the Akron Air Blast, the Air Conditioning Unit DeLuxe.

**The May-Fiebeger Co.  
Newark, Ohio**

## Warm Air Furnace Fan Announces Waffco Line

The new Waffco line of housed-in furnace blowers, with and without the patented Miles by-pass louvers, has been announced by the Warm Air Furnace Fan Co., Cleveland, manufacturers of Miles automatic furnace fans and Miles centrifugal furnace blowers.

Blowers, of 800 to 2,200 c.f.m. capacity, are available in both types.

The Waffco housing are insulated on all sides for sound absorption; bearings of the wick-oil type; a new horizontal type louver provides gravity free air area when the blower is idle, with the louver-type Waffco unit; full squirrel cage type blower wheel guarantees rated air volumes against all S. P. resistances; one or three-step pulleys can be furnished.

The Miles line of furnace blowers, with patented by-pass louvers is also available, without housing, in capacities from 800 to 6,000 c.f.m.

The features of the new line and also many of the company's older products are shown in a folder which may be had on request to the company. In addition to the showing of the units, complete sizes, prices and operating capacities are given in complete tables.

## Clarm Co. Offers New Humid-A-Stat and Waterstat

Clarm Mechanical Devices Company, 410 South Elizabeth Street, Lima, Ohio, is now selling two new pieces of furnace equipment. These devices are a Humid-A-Stat which maintains a constant water level above the furnace radiator and a Waterstat which controls the water level in the customary casing pan.

The Clarm Humid-A-Stat, a dome type humidifier, uses one size V-shaped copper pan with a wing nut adjustable feature on the water control valve to raise or lower the water level in this pan. This increases or decreases area of water surface, so that proper humidity can be delivered to any size of home. The control



The installation of the Clarm Humid-A-Stat is very simple. It is not necessary to cut or alter any part of the furnace. Piercing three small holes and the removal of one warm air lead to insert the copper pan is all that is necessary for a complete installation.

Full details and prices may be had from the company.



American Gas Association—October 12-16, 1931, at Atlantic City, N. J. Secretary, George Segeler, 420 Lexington Avenue, New York City.

Annual Conference on Bituminous Coal—November 16-21, at Pittsburgh, Penna.

National Association of Sheet Metal Distributors—October 20, 1931, at Palmer House, Chicago, Ill. Secretary, Geo. A. Fernley, Philadelphia, Penna.

National Warm Air Heating Association—December 3, 4 and 5, 1931, at Mayflower Hotel, Washington, D. C. Managing Director, Allen W. Williams, W. C. A. U. Building, Columbus, Ohio.

American Society of Heating and Ventilating Engineers—January 25-28, 1932, at Cleveland, Ohio. Secretary, A. V. Hutchinson, 51 Madison Avenue, New York City.

International Heating and Ventilating Exposition—January 25-29, 1932, at Cleveland Auditorium, Cleveland, Ohio. Manager, Charles F. Roth, International Exposition Company, Grand Central Palace, New York City.

American Society of Refrigeration Engineers—January 25-29, 1932, at Hotel Cleveland, Cleveland, Ohio. Secretary, David L. Fiske, 37 West 39th Street, New York City.

## American Gas Offers Kerosene Burning Heater

A new kerosene heater is announced by the American Gas Machine Company of Albert Lea, Minnesota. It is of the cabinet or circulator type, and has two burners. These are of the long-chimney, cotton wick type, known as "Level-Lift" burners because the gear which raises and lowers the wick is connected with both sides



of the wick. The one-gallon, removable fuel tank is concealed within the body of the heater. It is equipped with a fuel gauge. A large door is provided in the front, giving easy access to the burners for lighting.

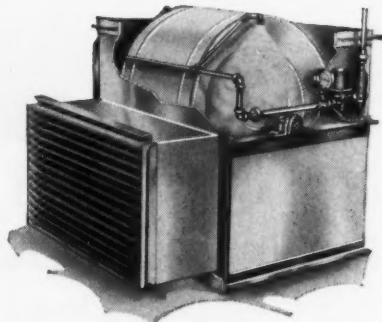
The manufacturers state that the new heater will raise the temperature of a room 14 feet square by 9 feet high from 52 degrees to 70 degrees in 30 minutes when operated at approximately the full capacity of the two burners.

## Minneapolis-Honeywell Goes on the Air

The Wonder Hour, which was introduced to the nation's radio audience on Sunday, September 27, over the National Broadcasting System's Red Network, marked the beginning of the second series of fall programs sponsored by the Minneapolis-Honeywell Regulator Company. This program, which was the first of a series of thirteen weekly Sunday afternoon broadcasts, commencing at 3:30 eastern standard time, is dedicated to the wonders which modern engineering has accomplished in automatic control of heat, cold and pressure.

In commenting on this fall radio campaign, Mr. C. B. Sweatt, vice-president in charge of sales of the Minneapolis-Honeywell Regulator Company, said: "The Wonder Hour, dedicated to the accomplishments in the field of automatic heating, should be of special significance to the readers of AMERICAN ARTISAN.

## Now for Homes— Single Unit Washer-Blower



—at  
**One-Unit Price**

AGGRESSIVE dealers everywhere are setting up new Fall sales records with the new Am-Pe-Co Air Washer-Blower Combination.

Gives homeowners *both* washed and humidified air at *one-unit* cost. Undersells all types of ordinary double installations. Compact, saves space, only 36 inches high; makes a better job. Can also be operated as a summer cooling system.

Modern, scientific design, *guaranteed ratings*, finest workmanship throughout. Described fully in new illustrated circular just out. Write for a copy and for dealer prices. Be the first in your community to *cash in* on the Am-Pe-Co Washer-Blower.

*Also Am-Pe-Co Blowers for  
forced air systems only*

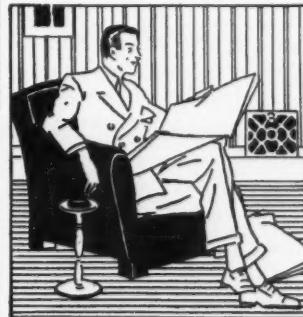
**American Machine Products Co.**  
Box B, Marshalltown, Iowa

# PAYNE



GAS-FIRED  
VENTED

## CENTRAL HEATING S Y S T E M



Now you can compete in installation cost with the average old fashioned liquid or solid fuel plant.

More than that, Payne Central Furnaces set a new standard of performance! They provide a degree of heating luxury never before achieved!

You can make more profits this year by concentrating your efforts on one line... Payne!

You enjoy full cooperation from the largest installing organization of its kind in the world.

This is going to be a "big year" in gas heating. Why waste time representing "second bests". Tie up with the leader. Write now for proposition.



**PAYNE FURNACE  
& SUPPLY CO., INC.**  
Beverly Hills, California

Warehouse—Buffalo, N. Y. • Jobbing Connections in Principal Cities  
Dealers Everywhere

There's a Payne Heat System for Every Climate and Building

Mention AMERICAN ARTISAN in your reply—Thank you!

## Williamson Heater Co. New General Catalogue

The Williamson Heater Company, Cincinnati, Ohio, has published and is now filling requests for a new general catalogue, which the company believes is as complete a book of its kind as has ever been offered dealers.

The pages of the book are in loose leaf form. When all pages are assembled the book has 150 pages. The catalogue illustrates and describes the complete Williamson line of furnaces and accessories. Heating equipment for any type of installation from the simplest gravity to modern air conditioning is shown and described.

In addition, several pages are devoted to engineering data such as the Standard Code, eighth edition, and the Williamson quick, ready-reference tables.

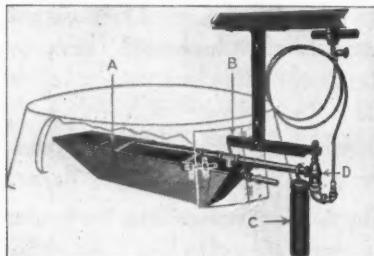
The last chapter tells all about the company's deferred payment plan.

Books will be mailed dealers just as rapidly as facilities will permit.

### Supplementary Data on Lakeside Line

Three bulletins are now being mailed to the trade by the Lakeside Company, in the form of inserts for the company's catalog. The one bulletin has to do with the IXL humidifier and the others with the IXL air washer and filter cabinets for use with the Furblo furnace blower.

These filter cabinets have been especially designed to accommodate the



V-N air filter to lessen the dealer's effort in making an installation and to insure a trim, neat, workmanlike installation.

With these cabinets the filters fit into a drawer equipped with handles. To insert new filters, the drawer is simply pulled out and the used filters are replaced with new ones.

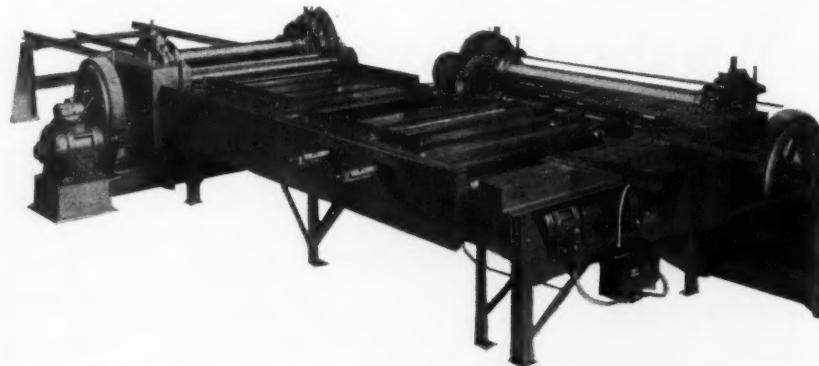
The third bulletin illustrates and describes the IXL air washer. One of the views shows the arrangement of the spray heads and eliminator plates.

These bulletins give prices and trade data on these various products.

## Yoder Automatic Rotary Resquaring Shear

The Yoder Company, West Fifty-Fifth Street and Walworth Avenue, Cleveland, Ohio, has designed and perfected the automatic rotary resquaring shear shown in the illustration.

This machine is built to handle vary-



ing widths and lengths of sheets. It trims the long edges and automatically transfers the sheets to the cross cutting shear for trimming the ends of the sheets, always holding the sheets for very close tolerances.

The company states that exhaustive tests have shown the machine will resquare sheets more accurately than

can be done by any other means. The unit can be furnished with coiling rolls for coiling cut sheets.

The capacity of the machine is  $\frac{1}{8}$ -inch sheet and lighter.

The machine is controlled by the operator at the feed-in end of the shear. The shear is independently driven. The shear comes equipped

with threaded, split and adjustable cutters.

The machine is especially adaptable to shops handling contracts where a large poundage of sheets have to be resquared for ventilation or architectural metal work. Prices, details of construction and operation may be had from the company.

## Forest City Foundries Making Auxiliary Gas Furnace

A new type of gas furnace, one that will be within the reach of the lower income classes, has been announced by the Forest City Foundries Company of Cleveland.

This new warm air, gas-fired, unit is the Niagara Junior Auxiliary Gas Furnace. It is designed for installation beside the present coal furnace, connected to the latter's casing at top and bottom, so that either or both can be used.

While the Niagara Junior is highly efficient, much of its operating economy is due to its method of use. It will be used in all except severe mid-winter weather, when either the coal furnace or both the Niagara Junior and the coal furnace will be operated. In this way, the user can have gas heat for a large part of the heating season, when the convenience of gas is desired, yet dispense with its use in extreme weather. In average installations it has been found that the Niagara Junior can be used for nearly 80 per cent of the season; and with natural gas, the total annual fuel cost is not noticeably increased.

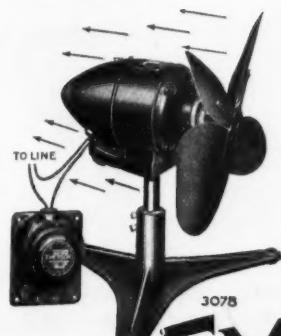
The Niagara Junior embodies a thermo-syphon system of combustion product circulation and heat trans-

fer, together with ample vertical heat-transfer surfaces and direct upward air circulation. Reduced surplus secondary air, and automatic limitation of air entrainment at the draft hood have eliminated almost entirely the problem of



condensation. Patented draft and vent arrangements prevent any interference with the connected coal furnace, when the Niagara Junior is not in use.

Niagara Junior is designed and priced to open a new market by appealing to the group who cannot afford to heat with gas during the entire winter. Full particulars and prices can be had by writing the company.



# Wakes Up Sluggish Furnaces!

## The **EMERSON** Furnace FAN

**Easy to Sell  
Easy to Install**

### REAL PROFITS

12-in. \$35.00 list, Codeword  
TABAY

16-in. \$40.00 list, Codeword  
TABEZ

Above prices and codewords  
cover

110 volt, 60 cycle fans  
and include 3-speed regu-  
lators.

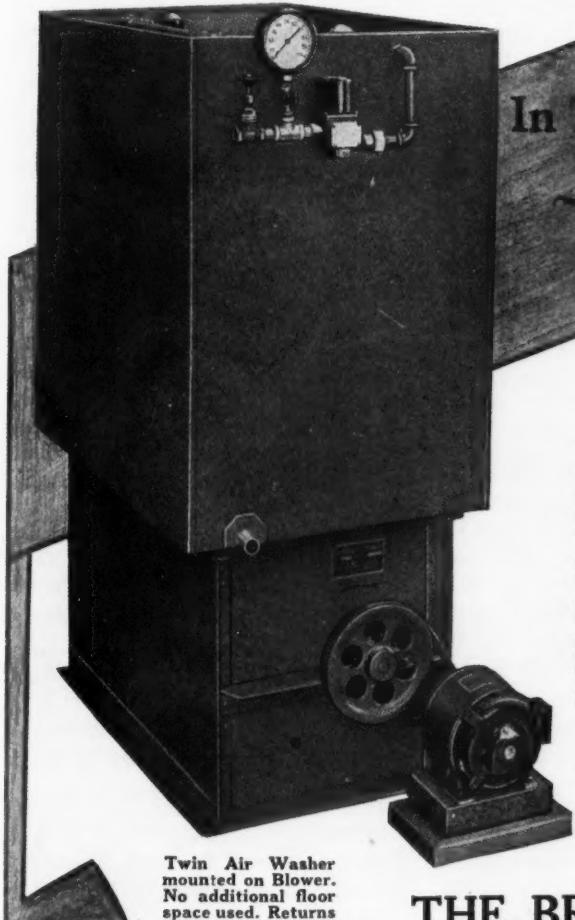
HERE'S the most practical and economical method of increasing the air circulation of Gravity Warm-Air Heating Systems. The Emerson Furnace Fan, with its special fan blades, provides unusual efficiency in forcing large volumes of air through ducts to the registers. Quiet motor. No radio interference. Air volume is controlled by 3-speed regulator. Adjustable motor mounting permits installation horizontally or at  $22\frac{1}{2}^\circ$  or  $45^\circ$  making it suitable for duct or boot installation. Don't overlook the extra profits and extra business you can get this winter with the Emerson Furnace Fan.

Order a sample for demonstration. Advertising  
folders with your imprint furnished FREE.  
Write your nearest distributor or direct to

THE EMERSON ELECTRIC MFG. COMPANY  
2018 Washington Ave., Saint Louis  
806 W. Washington Blvd., Chicago  
155 Sixth Avenue, New York City



Showing Emerson Furnace Fan  
installed in cold air duct of  
warm-air furnace



Twin Air Washer  
mounted on Blower.  
No additional floor  
space used. Returns  
enter at top.

### CO-PARTNERS In This Business of Air Conditioning

Brundage  
~ TWIN ~  
BLOWER

Brundage  
~ TWIN ~  
AIR WASHER

### Install MATCHED UNITS for MAXIMUM RESULTS

We all know what it means to have matched units. Experts and professionals in every business, sport or profession recommend matched products for greater efficiency and production.

We offer two units which are *matched* and which are co-partners in this business of Air Conditioning—one the Silent Brundage Twin Blower which has proven its ability under the most stringent requirements. The other the Brundage Twin Air Washer which scientifically washes, purifies and humidifies the air.

These two products are in truth Matched Units, a real match for the *hardest type* of air conditioning job.

Progressive dealers everywhere are finding  
Brundage "Air Conditioning" units profit-  
able to install. It will pay you to investigate

Manufacturers too will find it possi-  
ble to engineer Brundage Units into  
their plans for Air Conditioning.

**THE BRUNDAGE CO.** KALAMAZOO,  
MICHIGAN

# CAN YOU TELL ME?

## Gray Register Company

From Southwick Metal Company, Granite City, Illinois.

Where is the Gray Register Company located?

Ans.—2950 Bridge Street, Detroit, Michigan.

## Lacquered Tin Sheets

From Chas. K. Strassuer & Son, Anderson, Indiana.

Where can we get lacquered tin sheets?

Ans.—Caspers Tin Plate Company, 3424 West 48th Place, Chicago, Illinois.

## DeBothezat Impeller Exhaust Fan

From Ed. Holtz, Santa Rosa, California.

Who manufactures the DeBothezat Impeller Exhaust Fan?

Ans.—DeBothezat Impeller Company, 1924 Park Avenue, New York City.

## Repairs for Simplex Furnace

From The A. H. Robinson Company, Massillon, Ohio; Shelleen & Seaberg, Galesburg, Illinois.

Where can we get repairs for the Simplex Furnace?

Ans.—Refer to Buyers' Directory under "Furnace and Stove Repairs."

## Furnace Filters

From I. M. Kienzle, Lorain, Ohio.

Who manufactures filters for warm air furnaces?

Ans.—Independent Air Filter Company, 29 South Clinton Street, Chicago, Illinois; Kleenair Filter Company, Stevens Point, Wisconsin; Lakeside Company, Hermansville, Michigan.

## Hollow Punch

From Osakis Heating & Sheet Metal Works, Osakis, Minnesota.

Where can we buy a hollow punch with a 1-inch or 1 1/4-inch hole?

Ans.—Bertsch & Company, Cambridge City, Illinois; Interstate Machinery Company, 130 South Clinton Street, Chicago, Illinois; W. A. Whit-

ney Manufacturing Company, 636 Race Street, Rockford, Illinois.

## Back Draft Damper

From H. Schmalz, Sparta, Wisconsin.

Where can I get a back draft damper that will come up to my specifications?

Ans.—American Foundry & Furnace Company, Bloomington, Illinois.

## "Manest" Clothes Dryer

From Karl H. A. Haberecht, Gates Mills, Ohio.

Who manufactures the "Manest" Clothes Dryer?

Ans.—John E. Mannen Company, 2247 St. Clair Avenue, N. E., Cleveland, Ohio.

## Cast Iron Smoke Pipe

From Ossian Tin Shop, Ossian, Indiana.

Who manufactures cast iron smoke pipe and elbows?

Ans.—Sternaman Company, 441 Williams Street, Springfield, Illinois; Waterloo Register Company, Waterloo, Iowa.

## "Crescent" Steel Windows

From The Sterling Hardware, Williams, Iowa.

Who manufactures "Crescent" steel windows?

Ans.—Crescent Steel Company, Loughborough and Iron Mt., St. Louis, Missouri.

## Novelty Iron Co. Boiler

From John D. Morrell, Albion, Indiana.

Where can we get repairs for a hot water boiler made by the Novelty Iron Company of Canton, Ohio?

Ans.—Refer to Buyers' Directors under "Furnace and Stove Repairs."

## Sheet Metal Correspondence School

From W. A. Smith, Fort Atkinson, Wisconsin.

What schools teach warm air heating, ventilating and sheet metal work by correspondence?

Ans.—Carnegie Institute of Technology, Pittsburgh, Pennsylvania; St. Louis Technical Institute, 4543 Clayton Avenue, St. Louis, Missouri.

## "Champion" Hot Water Boiler

From The Moncrief Heating Company, Akron, Ohio.

Who manufactures the "Champion" hot water boiler?

Ans.—Melbye Brothers Company, 3206 North Oakley Avenue, Chicago, Illinois.

## "Caloric" Furnace

From Independent Supply Company, Inc., Christopher, Illinois; H. Ray Warren, Tuscola, Illinois.

Who manufactures the "Caloric" Furnace?

Ans.—Marshall Furnace Company, Marshall, Michigan.

## "Gildededge" Furnace

From Otto Schuman, Wisconsin Rapids, Wisconsin.

Who manufactures the "Gildededge" Furnace?

Ans.—Schwab Furnace & Manufacturing Company, Cedar Grove, Wisconsin.

## Flexible Metal Suction Hose

From C. Ed. Smith Furnace Company, New Castle, Pennsylvania.

Who manufactures metal flexible suction hose such as is used on vacuum cleaners?

Ans.—Allen Air Appliance Company, Inc., 76 East 45th Street, New York City; Atlantic Metal Hose Company, Inc., 300 West 52nd Street, New York City; International Nickel Company, Inc., 67 Wall Street, New York City; Pennsylvania Flexible Metallic Tubing Company, 7210 Powers Lane, Philadelphia, Pennsylvania.

## Extension Ladder

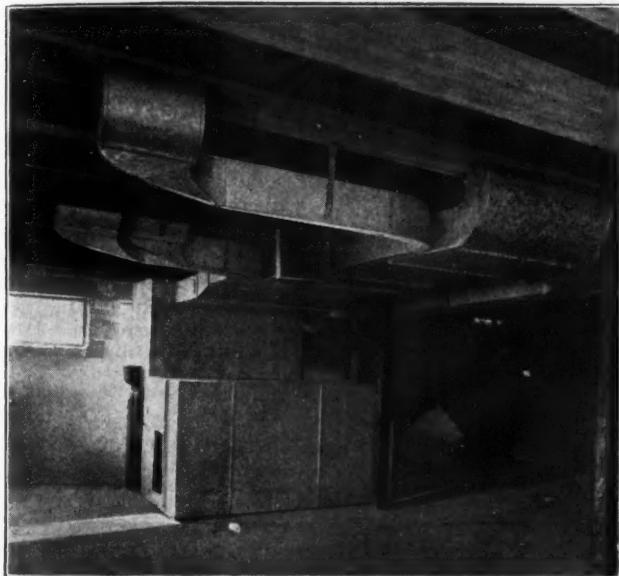
From J. H. Barnett, Dodge City, Kansas.

Where can I buy extension ladders made of spruce wood?

Ans.—Berger Brothers Company, 229-237 Arch Street, Philadelphia, Pennsylvania.

# NOT just another furnace

*... but a complete line that lifts you out of the competitive class.*



Hess Indoor Climate Master Unit and Basement Trunk Line

When you buy Hess Air Conditioning Equipment, you buy a complete service. Welded steel heaters, blowers, Airwater units, filters, etc., backed by a 50-year reputation; layouts and installation kinks that have been learned by actual experience in designing high-class air conditioning systems.

### Don't guess—ask Hess

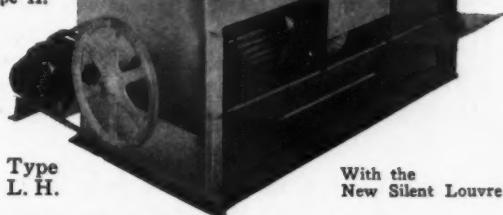
Why shop around—why take a chance—when Hess can start you off right to a permanent success? Never was there a better time to establish yourself as the leading dealer in your city. We can do much to help you in air conditioning work, but first you must write. Do so now—complete information will be sent immediately.

Hess Warming & Ventilating Company  
1201-1211 S. Western Ave., Chicago, Ill.  
Branches: Detroit—Milwaukee

**HESS**  
WELDED STEEL FURNACES  
INDOOR CLIMATE CONTROL  
**SYSTEM**

Mention AMERICAN ARTISAN in your reply—Thank you!

"Waffco"  
Series  
Blowers.  
If wanted  
without  
louvres  
specify  
Type H.



Type  
L. H.

With the  
New Silent Louvre

## Make money by creating air-conditioning systems from old equipment

HERE is a real sales opportunity in front of you now. People are air-conditioning conscious. They want air motion, humidity, filtered air and positive delivery of heat, with cool air in summer. But, they are not aware that they can have this in connection with their present heating equipment for a very reasonable sum, no matter what fuel they use. It is up to you to tell them.

Every furnace owner is an immediate prospect for an air-conditioning system. And by means of Miles Blowers and Miles Automatic furnace fans with the famous by-pass louvres, you can give it to them. Why not go after this business? It is easy to locate prospects—and easy to sell them.

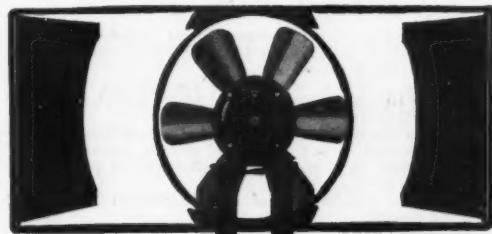
### Install MILES Fans and Blowers for Safety's Sake!

(1) Miles Fans are designed exclusively for FURNACE work and will do a real job. (2) They are equipped with Miles patented by-pass louvres which permit an instant return to gravity heating if the electricity ever shuts off, as it sometimes does. The automatic by-pass louvres are a *guarantee* not only that you can operate the furnace but that it won't burn out when the fan shuts off. Time and again, experience proves the value of by-pass louvres. Don't take chances!

We are pioneers in air-conditioning and our long experience and recognized engineering ability are at the service of our customers.

*Write for full information and let us tell you how you can go after this business*

**The Warm Air Furnace Fan Co.**  
6545 Carnegie Ave., Cleveland, Ohio



Miles Furnace Fan idle with automatic By-pass Louvres open

# “WHICH will you do?”

Which will YOU do - -

is a new selling help designed to boost the business of contractors using Anaconda Copper. Copies of this folder and others are supplied free of charge — each specially imprinted with the individual contractor's name and address. Write today for a supply. The American Brass Co., Waterbury, Conn.

ANACONDA  
COPPER

**SILENTAIR**  
AIR CONDITIONING UNITS

THE FAN      THE WASHER      THE FILTER

The tremendous success of SILENTAIR AIR CONDITIONING UNITS results, in no small measure, from the fact that they are MATCHED UNITS. Easily installed with any warm air furnace they bring splendid profit to dealers and comfort and economy to home owners. Write for descriptive literature.

**A. GEHRI & CO., INC.**  
Factory & Main Office - - - Tacoma, Washington  
Eastern Sales Office & Warehouse, Baltimore Trust Bldg., Baltimore

## ENGINEERING SERVICE BY MAIL- at Unheard of Prices

### LOOK THESE PLAN PRICES OVER

#### RESIDENCES

Up to and including 5 rooms... \$1.10 per room  
5 to 9 rooms inclusive ..... \$1.00 per room  
10 to 15 rooms inclusive ..... \$0.85 per room  
16 to 20 rooms inclusive ..... \$0.80 per room  
21 rooms and over..... \$0.75 per room

#### SCHOOLS

20,000 to 50,000 cu. ft. .... \$0.30 per 1,000 cu. ft.  
50,000 to 70,000 cu. ft. .... \$0.25 per 1,000 cu. ft.  
70,000 to 100,000 cu. ft. .... \$0.20 per 1,000 cu. ft.  
100,000 cu. ft. and over ..... \$0.15 per 1,000 cu. ft.

#### CHURCHES

Up to and including 50,000 cu. ft. gross content ..... \$0.12 per 1,000 cu. ft.  
50,000 cu. ft. and over ..... \$0.10 per cu. ft.

#### FACTORIES, GARAGES

Duct systems—\$0.12 per 1,000 cu. ft. gross content.  
Unit heater systems—\$0.10 per 1,000 cu. ft. gross content.

#### SPECIAL NOTE

Where heating systems include filters, washers, temperature control as EXTRA EQUIPMENT—add 20 per cent to above prices.

Where filters, washers, temperature controls are A PART OF THE HEATER AND ARE UNDER ONE CASING—listed prices apply.

For complete working plans detailing all trunk lines in  $\frac{1}{2}$ -inch scale and showing details of elbows, stacks, branches, sections, cross sections of walls—add 50 per cent to list prices.

Add \$0.01 per square foot of direct radiation for combination systems.

I offer this service on a mail order basis and at unheard-of low prices. I supply complete plans so you can show your buyer just what he is going to get and what the system will look like and how it will work. These plans will save you many dollars in labor, time and material.

At these prices you can afford a consulting engineer's services with every plan you submit. And you can guarantee every installation.

### HOW TO USE THIS SERVICE

Send architect's plans. If you must send sketches, these should be as complete as possible and show dimensions of building, rooms, ceiling heights, locations of doors and windows. Show all floors, glass areas, type of construction, compass points, direction of prevailing winds. In short, show all items considered in Standard Code calculations.

#### The More Complete the Information—the Better the Layout

Include with your plans all information about the equipment you expect or would like to use. I DO NOT SELL OR RECOMMEND ANY PARTICULAR EQUIPMENT!

List separately or send as a letter all peculiarities of the building, all owner's preferences such as furnace location, possible future additions, special room conditions such as especially high temperatures, etc.

Be sure to mail all material first class.

Terms are cash on receipt of the plans.

### WHAT YOU GET

Finished plans will be mailed within 48 hours after your plans are received.

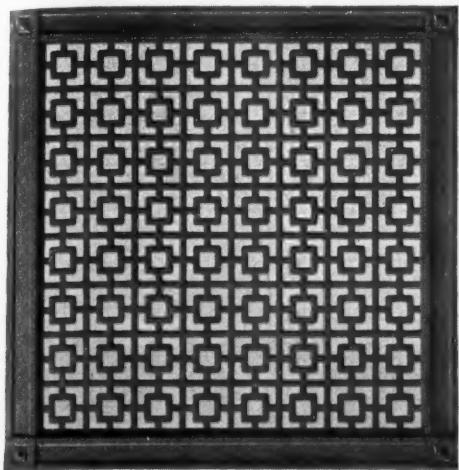
I send you one set of blue prints showing all floor plans with heater location, duct or leader location and arrangement, stack, register and grille locations and sizes, sizes of all trunks and branches or leaders. Also one complete data sheet to show how the installation was figured.

This material will be assembled so you can show your prospect or architect just what he is getting, how it will look, and how much thought you spent on the project. You get an extra set of blue prints for your buyer at \$0.04 per square foot.

**PLATTE OVERTON** Consulting Engineer

**2100 City Hall Square Bldg., Chicago**

Mention AMERICAN ARTISAN in your reply—Thank you!



## "GRILFRAME"

Enhances the beauty of any grille by the addition of a border frame of steel. You can do it with "Grilframe." Agents everywhere.

## PERFORATED METALS

*for every purpose*

No matter what the uses we can perforate metal to meet the purpose. In Public Buildings, Churches, Schools, Factories and Homes our grilles are dominant. There are hundreds of designs to select from.

**The H. & K. LINE Consists of PERFORATED SHEETS and a Full Selection of SAFETY GUARDS and GUARD ACCESSORIES**

**WRITE FOR CATALOG AND QUOTATIONS. Perforated metal for every purpose**

# THE HARRINGTON & KING PERFORATING CO.

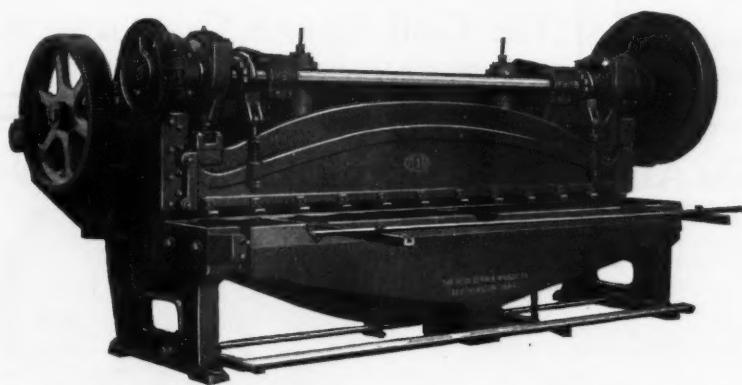
5649 Fillmore Street

Chicago, Ill., U. S. A.

New York Office, 114 Liberty Street

## QUALITY PLUS PERFORMANCE

### OVER-DRIVEN POWER SQUARING SHEAR S-400



A better shear of this type and capacity is yet to be produced. A sturdy—compact—reliable shear that has stood the most rigid tests. Simple to operate. All gearings enclosed in gear guards.

The name PEXTO is recognized by all manufacturers who know superior quality.

Send for a copy of Bulletin A10 which gives full details.



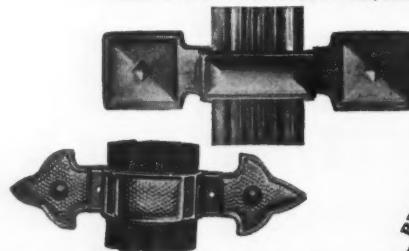
THE PECK, STOW & WILCOX CO.

SOUTHBURY, CONN.

## RIVAL STRAP CORP.

308 WEST 20th ST.  
NEW YORK, N.Y.

## THE RIVAL AND FITRITE

One-Piece Ornamental Leader Straps  
Patented July 10th, 1928; Jan. 6th, 1931

Made in six styles. Write for folder showing complete line and sizes.  
STRAPS SOLD THRU JOBBERS ONLY

BEWARE OF IMITATIONS

"FITRITE"  
Mop Heads & Staples  
Malleable Iron

Write Dept. "A" for full details and prices

## "FITRITE" SKYLIGHT GEARING



Iron or Bronze  $\frac{3}{8}$ "  $\frac{1}{2}$ " and 1" sizes  
Made also for chain operation



"Fitrite" Adjustable  
PIPE SNOW GUARDS  
Galvanized Iron or Bronze

"FITRITE" Bronze  
BEEHIVE STRAINERS  
For Round Leaders  
3"-4"-5"-6"-7"-8" Diameter

## DAVID LEVOW

308 WEST 20th ST.  
NEW YORK

## IXL AIR WASHER



designed  
for use  
with

## FURBLO

The Quiet  
Efficient  
Furnace  
Blower

Write for Complete  
Descriptive Information

The IXL answers the insistent demand of dealers for an air washer to be used with Furblo. Placed on top of the blower, it takes no added floor space. A highly efficient air conditioner. Learn more about it. Write today.

LAKESIDE CO., Hermansville, Michigan

Makers of Lakeside Ventilating Systems



"True to the Name"  
**FAULTLESS**  
**WARM AIR FURNACES**

OUR NEW SALES HELPS  
ACTUALLY SELL FURNACES

Faultless Merchandising and Advertising Material for dealers actually achieves the definite purpose for which it is intended . . . it sells furnaces! Why not put it to work for you . . . write for our franchise facts.

The Graff Furnace Co.—Scranton, Pa.

New York City Sales Office: 116-118 Wooster St.

## A Heat Hustler Fan Forces Air Through a Single Warm Air Pipe

Heats garages, sun porches and other rooms that will not heat by gravity. Mounts directly in the warm air pipe. Draws heat from the furnace and forces it into the hard-to-heat room. Quick heat for a bathroom.

Four reasons why you should use the American Heat Hustler:

1. It uses a positive pressure, rotary type fan.
2. Motor is outside the warm air flow, adding greatly to life of motor and leaving as much space for gravity air flow as before the Heat Hustler was installed.
3. It is quiet.
4. Furnished for either automatic or manual control.

Price list, with descriptive literature showing different models, sizes, etc., will be sent you by return mail upon receipt of your request. CLIP AND SEND THIS AD IN NOW!

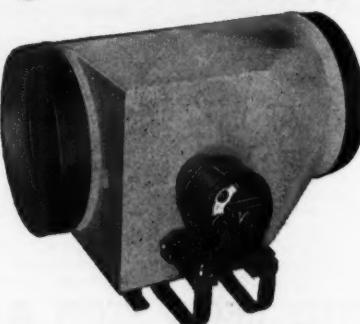
**AMERICAN FOUNDRY & FURNACE COMPANY**

Bloomington,

World's largest manufacturers  
of blower furnace systems

Illinois

PATENTED



Mention AMERICAN ARTISAN in your reply—Thank you!

THE re-organized and re-financed company is making good on all its pledges. Dealers everywhere are finding the unlimited co-operations given a sure means towards success. You too can build toward success with Giltedge.

SCHWAB FURNACE & MFG. CO.

MILWAUKEE OFFICE

**GILTEDGE**

The Furnace  
with a  
**GOOD**  
Name

GILTEDGE Furnaces  
are constructed so as  
to give maximum efficiency  
and a life time of service.

CEDAR GROVE, WISCONSIN

522 CHERRY STREET

*Write for our catalog  
and dealers' Profit-sharing proposition*

## "FLASH" HEAT REGULATOR

— Thermostatic —  
All Electric Control



DEALER PRICE  
\$1650

Including all necessary installation  
and fully guaranteed.

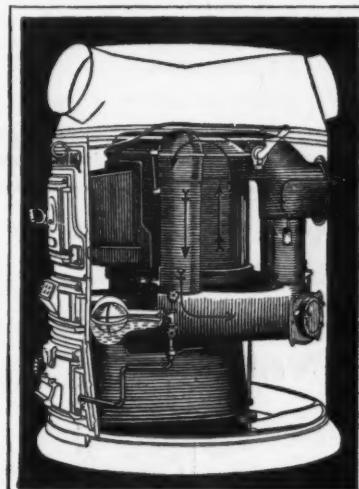
THE FLASH HEAT REGULATOR has proven a real sensation. It is years ahead of all other types, no chains or pulleys. Simple to install and always to be depended upon. Adaptable to any warm air furnace.

Order Sample Today

THE MODERN HEAT REGULATOR CO.  
Manufacturers of the Flash, Modern and Sentinel Heat Regulators  
CLEVELAND, OHIO

## Your Selling— ROUND OAK FURNACES

— Assures Your Customers of the greatest values for original equipment or for replacement of old furnace



Now—

is the time to show your own trade Nationally Known-Quality Round Oak's to meet every warm-air heating problem.

Write today for complete data

Illustrated  
Moistair DeLuxe

Round Oak Furnace Company  
Dowagiac, Michigan



## Better Than Ever In Times Like These

Prove the economy of owning a product and today it is more than half sold. Tell your prospects about the saving of fuel that is possible with the rugged steel

### X-L-ALL WARM AIR FURNACE

by virtue of the extra large casings, lined with corrugated black iron; the big straight firepot and extra large heat trap entirely within the casing which has the effect of a second furnace, re-employed heat otherwise wasted up the chimney. Then point to the complete fuel consumption made possible by the oversize combustion chamber which gains the same efficiency with a 20"-grate that others do with a 24"-size, allowing ample room for expanding gases and providing a reserve of heat for quick demand as well as preventing "hot spots," burning out or buckling.

X-L-ALL dealers have many other unusual and exclusive points in their favor but the economy of these modern heating plants alone assures them profitable business. Get into the money yourself. Send today for our unusual dealer proposition and X-L-ALL Furnace Book.

Deshler Foundry & Machine Works  
140-142 S. East Ave., Deshler, Ohio  
Please send me without obligation  
The X-L-ALL Furnace Book.  
The X-L-ALL Dealer Propo-  
sition.

Name.....  
Street.....  
City..... A.A.

**X-L-ALL RUGGED STEEL WARM AIR FURNACES**

*Say you saw it in AMERICAN ARTISAN—Thank you!*

## STOP Trying to Seal a Furnace with Asbestos Mud Cements



Makes a cast iron furnace one piece, but you can take it apart. Used by leading furnace installers.



Better than asbestos paper. Double seals leaky furnaces, without tearing them down.

JUST SAY. Ship quart Metalute and Color-Bestos for \$2.00. Guaranteed.

TECHNICAL PRODUCTS COMPANY  
INSA-LUTE CEMENTS SAUER LISEN ADHESIVES COMPOUNDS  
Pittsburgh (SHARPSBURG STATION) Pennsylvania



GEO. W. DIENER MFG. CO.  
404 North Monticello Ave. Chicago

The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

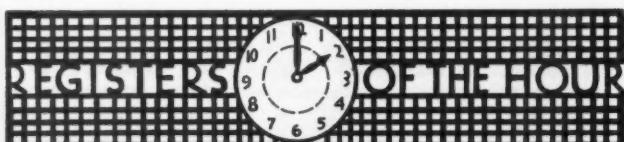
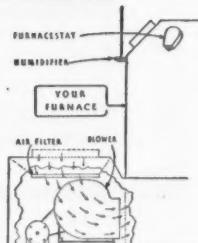
A fuel saver and generating machine of the finest quality made at the price.

## MONCRIEF AIR CONDITIONER

Attaches to any make of furnace. Circulates, humidifies and cleans the air. Automatic.

Send for special circular

THE HENRY FURNACE & FOUNDRY CO.  
3471 East 49th St. Cleveland, Ohio

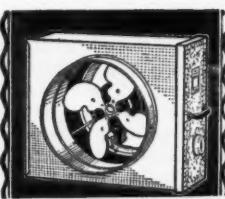


AUER MAKES A  
GRILLE AND REGISTER  
TO MEET EVERY NEED

AUER REGISTER COMPANY  
3608 Payne Avenue CLEVELAND, OHIO

Say you saw it in AMERICAN ARTISAN—Thank you!

Efficient  
•  
Powerful  
•  
Automatic



Easy to  
Sell  
Easy to  
Install

Write To-day for Full Information and  
Name of Nearest Jobber

**A-C** Thermositically Controlled  
Automatic  
**HEAT BOOSTER**  
A-C MANUFACTURING COMPANY  
417 SHERMAN AVENUE  
PONTIAC, ILLINOIS

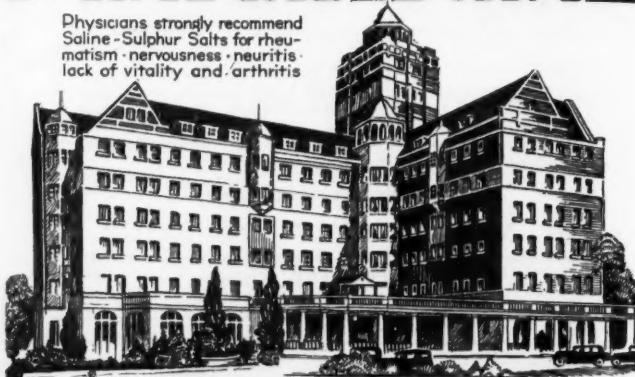
## THE WORLD'S LARGEST MANUFACTURERS OF STEEL FURNACES

**LENNOX**  
FURNACE CO., INC.

MARSHALLTOWN, IOWA  
SYRACUSE, NEW YORK

## Mineral Baths

Physicians strongly recommend  
Saline-Sulphur Salts for rheumatism - nervousness - neuritis - lack of vitality and arthritis



HOTEL  
**WHITCOMB**

World-famous Mineral Baths analyzed by leading authorities and found to contain many curative qualities equal in medicinal values to those of famous European Spas. The Whitcomb is located on a High Bluff overlooking the lake. Completely modern... Every facility for rest and recreation.

**ST. JOSEPH - MICHIGAN**

J.T. TOWNSEND Manager

## LET'S GET DOWN TO CASES

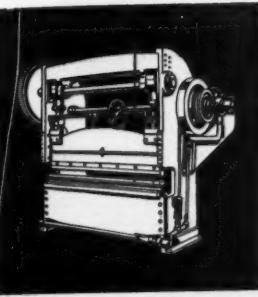
Since 1908 we have scientifically designed and manufactured punches. Over 50,000 satisfied users can testify as to the quality and dependability of Whitney lever punches. There is no better punch on the market.



This trade mark is your assurance of quality and workmanship and is your guarantee of satisfaction.

Write for Catalog

W. A. WHITNEY MFG. COMPANY  
636 Race Street - - - Rockford, Ill.



Press Brake



Hand Bending Brake

STEEL BRAKES—PRESSES—SHEARS

DREIS & KRUMP MFG. CO.  
7404 LOOMIS BLVD. CHICAGO

## CHICAGO

## A CATALOG YOU SHOULD HAVE -



WRITE  
FOR  
IT

## ▼ QUAKER CITY MITERS WITHSTAND THE FURY OF THE ELEMENTS

(Sold by Leading Jobbers Everywhere)

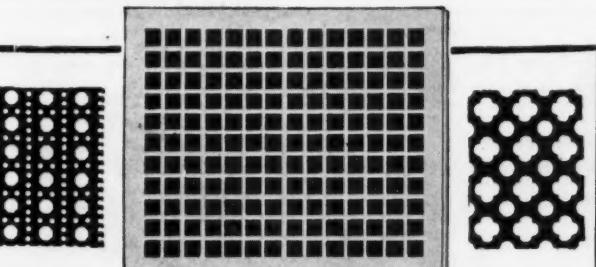
BERGER BROTHERS CO.  
229-31 Arch St. Philadelphia  
Other B. B. Products: Conductor pipe, hangers, eaves trough, caps, outlets, pipe hooks and fasteners.

## IT PAYS.....

to have complete information on Burt Ventilators in your files at all times. It will prepare you to quote every job immediately and to submit all necessary data. Write today for booklets and prices.

## The BURT MFG. Co.

Ventilators—Oil Filters—Exhaust Heads  
300 MAIN STREET AKRON, OHIO



## PERFORATED METAL GRILLES

OF EVERY TYPE

SQUARE PERFORATIONS—IMITATION CANE and OTHER DESIGNS  
For Ventilating Outlets, Warm or Cold Air Vents, Radiator Covers, etc.  
Made to your specifications—in Steel, Brass, Bronze, etc.  
All shapes—sizes & gauges—with screw holes if desired.

Send Us Your Specifications—Prompt Shipment

Attractive Prices

CHICAGO PERFORATING COMPANY  
2444 West 24th Place Chicago, Illinois

You can now heat with fresh air as economically as with recirculated air—and better.

## FRESHAIRE HEATING SYSTEM

Write for details

GENERAL HEATING COMPANY  
St. Paul, Minn.



## PREMIER FURNACES

"Constantly Improved,  
Supreme in their Field"  
Guaranteed for 10 Years

PREMIER  
De Luxe  
(Cast Iron)

Write  
for  
1931  
Catalog

PREMIER  
Duo-Weld  
(Steel)

Mention AMERICAN ARTISAN in your reply—Thank you!

# ~ MARKET QUOTATIONS ~

AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.

*NOTE—These prices are Chicago Warehouse Prices, to which must be added territory differentials*

## METALS

### PIG IRON

Chicago Fdy., No. 2	\$17.50
Southern Fdy., No. 2	17.01
Lake Superior Charcoal	25.04
Malleable	17.50

### FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

10	20x28 112 sheets	\$23.80
IX	20x28	27.45
XXX	20x28 56 sheets	14.95
XXXX	20x28	16.10
XXXXX	20x28	17.85

### TERNE PLATES

	Per Box	
IC 20x28, 40-lb.	112 sheets	\$22.50
IX 20x28, 40-lb.	112 sheets	25.00
IC 20x28, 25-lb.	112 sheets	19.60
IX 20x28, 25-lb.	112 sheets	22.10
IC 20x28, 20-lb.	112 sheets	18.25
IX 20x28, 20-lb.	112 sheets	20.75

### "ARMCO" INGOT IRON PLATES

No. 8 ga.—110 lbs.	\$4.15
3/16 in.—100 lbs.	4.05
1/4 in.—100 lbs.	3.85

### COKE PLATES

Cokes, 89 lbs., base, 20x28	\$12.00
Cokes, 90 lbs., base, 20x28	12.20
Cokes, 100 lbs., base, 20x28	13.75
Cokes, 107 lbs., base, IC, 20x28	12.75
Cokes, 135 lbs., base, IX, 20x28	14.75
Cokes, 155 lbs., base 2X, 56 sheets	8.50
Cokes, 175 lbs., base, 3X, 56 sheets	9.35
Cokes, 195 lbs., base, 4X, 56 sheets	10.25

### HOT ROLLED ANNEALED SHEETS

Base 10 ga.	per 100 lb.	\$8.25
"Armco" 10 ga.	per 100 lbs.	4.15

### HOT ROLLED ANNEALED SHEETS 16 GA. AND HEAVIER

No. 18	per 100 lbs.	\$8.25
No. 20	per 100 lbs.	8.35
No. 24	per 100 lbs.	8.45
No. 26	per 100 lbs.	8.55
No. 27	per 100 lbs.	8.65
No. 28	per 100 lbs.	8.70

### GALVANIZED

No. 16	per 100 lbs.	\$3.70
No. 18	per 100 lbs.	8.80
No. 20	per 100 lbs.	8.90
No. 22	per 100 lbs.	4.00
(Standard differentials on extras to apply)		
No. 24	per 100 lbs.	\$4.10
No. 26	per 100 lbs.	4.35
No. 27	per 100 lbs.	4.45
No. 28	per 100 lbs.	4.60
"Armco" 24	per 100 lbs.	5.75

### BAR SOLDER

Warranted 50-50 per 100 lbs.	\$19.25
45-55 per 100 lbs.	17.00
48-52 per 100 lbs.	17.75
Plumbers' per 100 lbs.	15.50

In Slabs	\$5.00
----------	--------

### HEET ZINC

Cask Lots (600 lbs.)	\$12.00
Sheet Lots (100 lbs.)	18.00

### BRASS

Sheets, Chicago base	16 1/2 c
Tubing, seamless, Chicago base	20 1/2 c
Wire, Chicago base	16 1/2 c
Rods, Chicago base	18 1/2 c

## COPPER

Sheets, Chicago base	18 1/2 c
Tubing, seamless, Chicago base	20 1/2 c
Wire, plain rd., 8 B. & S. Ga. and heavier	12 1/2 c

## LEAD

American Pig	\$6.00
Bar	7.50

## TIN

Bar Tin	per 100 lbs. \$33.00
Pig Tin	per 100 lbs. 32.00

## SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

## ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	6 1/2 c per lb.
Mill board, 3/32 to 1/4	6 1/2 c per lb.
Corrugated paper (250 sq. ft. per roll)	\$4.25 per roll
Pipe joint tape, per 500 lineal feet	\$1.50

## ASBESTOS SEGMENTS

8 in.	per 25 sets	\$1.50
9 in.	per 25 sets	1.75
10 in.	per 25 sets	2.00
12 in.	per 25 sets	2.50

## CEMENT, FURNACE

5-lb. cans, net	\$0.40
10-lb. cans, net	0.80
25-lb. cans, net	2.00

Per 100 lbs.	7.50
--------------	------

## CLIPS

## DAMPER

No-Rivet Steel, with tail pieces, per gross	\$8.25
Rivet Steel, with tail pieces, per gross	7.50
Tail pieces, per gross	2.00

## COPPER FOOTING

Copper Footing	43 %
----------------	------

## CORNICE BRAKES

## Chicago Steel Bending

No. 1 to 6B	Net
-------------	-----

## CUT-OFFS

## ELBOWS

Gal. plain, round or cor. rd.	30 %
26 gauge	35 %

## DAMPERS

Yankee Warm Air	\$1.60
7 inch, doz.	2.20
8 inch, doz.	2.60
9 inch, doz.	2.80
10 inch, doz.	3.50
12 inch, doz.	5.00

## EAVES TROUGH

Gal. Crimped, crated	75-15 %
Zinc	60 %

## ELBOWS

Conductor Pipe	60-10 %
28 gauge	50 %
24 gauge	15 %

## Galvanized Terne Steel

Plain Rd. and Rd. Corr.	60-10 %
28 gauge	50 %
26 gauge	15 %

## HANGERS

Conductor	25 %
Milcor Perfection Wire	10 %

## Hooks

"Direct Drive" Wrought Iron, for wood or brick	15 %
--	------

## HOOKS

Conductor	70-15 %
28 gauge	70- 5 %
26 gauge	70- 5 %

## HOOKS

Conductor	70-15 %
28 gauge	70- 5 %
26 gauge	70- 5 %

## HOOKS

Conductor	70-15 %
28 gauge	70- 5 %
26 gauge	70- 5 %

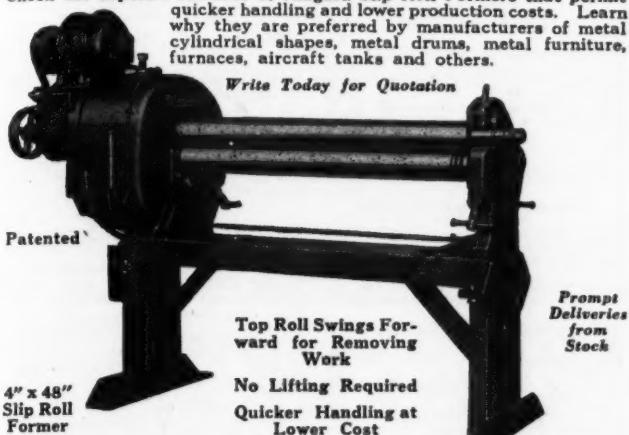
## HOOKS

Conductor	70-15 %
28 gauge	70- 5 %</

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Check the superior features of Niagara Slip Roll Formers that permit quicker handling and lower production costs. Learn why they are preferred by manufacturers of metal cylindrical shapes, metal drums, metal furniture, furnaces, aircraft tanks and others.

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2" Slip Roll Former Hand Operated	3" Slip Roll Former Belted Motor Drive—Pulley Drive or Hand Operated
No. 330 — 2" x 30" — 22 Gauge	No. 340—3" x 36"—14-16 Gauge
No. 331 — 2" x 36" — 22 Gauge	No. 341—3" x 42"—15-18 Gauge
No. 332 — 2" x 42" — 22 Gauge	No. 342—3" x 48"—16-18 Gauge
4" Slip Roll Former Belted Motor Drive—Pulley Drive or Hand Operated	
No. 349—4" x 36"—10-11 Gauge	
No. 351—4" x 48"—12-14 Gauge	
No. 353—4" x 60"—14-16 Gauge	

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Compound lever handle—removable blades. Upper blade away from mechanic enabling easy following of work—an exclusive Viking feature.



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Sheet Metal  
Working  
Machinery.

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This shear with 60" gap to accommodate large sheets, will cut any weight of sheet metal up to 14 gauge. It can be used for short curves in any direction and will cut circles without running in from the side of material. This machine has two speeds controlled by hand lever and is equipped with a Yoder friction clutch. Write for further information.

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**MARSHALLTOWN**



**SHEARS**



**No. 18**

**SPECIFICATIONS**

**CAPACITY**—  
18 gauge and lighter—13/4" radius.

**CUTTERS**—  
2" x 1 1/4"—high grade tool steel. Slightly knurled to feed material.

**ADJUSTMENT**—  
One bolt. Instructions furnished.

**SIZE AND MATERIAL**—  
Height 19 1/2"; head cast iron; base cast iron; gears steel and cast iron. Shipping weight 45 lbs.

That's what you're looking for—shears that will save money for you—shears that stand the gaff.

Install at least one type of Marshalltown throatless shears in your shop. Do it now!

**SHEARS FOR EVERY  
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MARSHALLTOWN  
IOWA

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**SQUARES,  
TRIMS  
AND  
SLITS**  
all sheets  
14 gauge  
or  
lighter



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for  
Catalog  
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Say you saw it in **AMERICAN ARTISAN**—Thank you!

# BUYERS' DIRECTORY

## Air Cleaners

American Fdy. & Furnace Co., Bloomington, Ill.  
Independent Air Filter Co., Chicago, Ill.  
Kleenaire Filter Co., Stevens Point, Wis.  
Lakeside Co., Hermansville, Mich.  
Meyer & Bro., F., Peoria, Ill.

## Air Washers

American Machine Products Co., Marshalltown, Iowa  
Brundage Co., Kalamazoo, Mich.  
A. Gehri & Co., Tacoma, Wash.  
Health-Air Systems, Ann Arbor, Mich.  
Hess Warming & Vent. Co., Chicago, Ill.  
Menominee Air Washer Co., Menominee, Mich.

## Asbestos—Liquid

Technical Products Co., Pittsburgh, Pa.

## Asbestos Covering and Paper

Standard Asbestos Co. of Chicago, Chicago, Ill.  
Wilson, Grant, Inc., Chicago, Ill.

## Ash Sifter

Diener Mfg. Co., G. W., Chicago, Ill.

## Blast Gates

Berger Bros. Co., Philadelphia, Pa.

## Blowers

American Fdy. & Furnace Co., Bloomington, Ill.  
American Machine Products Co., Marshalltown, Iowa  
Brundage Co., Kalamazoo, Mich.  
Emerson Elec. Mfg. Co., St. Louis, Mo.  
A. Gehri & Co., Tacoma, Wash.  
Health-Air Systems, Ann Arbor, Mich.  
Hess Warming & Vent. Co., Chicago, Ill.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Lakeside Co., Hermansville, Mich.  
Menominee Air Washer Co., Menominee, Mich.  
Warm Air Furnace Fan Co., Cleveland, Ohio

## Brakes—Bending

Dreis & Krump Mfg. Co., Chicago, Ill.  
Interstate Machinery Co., Chicago, Ill.  
Peck, Stow & Wilcox Co., Southington, Conn.

## Brakes—Cornice

Dreis & Krump Mfg. Co., Chicago, Ill.  
American Brass Co., Waterbury, Conn.  
Revere Copper and Brass Inc., Rome, N. Y.

## Cans—Garbage

Diener Mfg. Co., G. W., Chicago, Ill.

## Castings—Malleable

Fanner Mfg. Co., Cleveland, Ohio

## Ceilings—Metal

Globe Iron Roofing and Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Chaplets

Fanner Mfg. Co., Cleveland, Ohio

## Cleaners—Vacuum

(See Furnace Cleaners)

## Conductor Elbows and Shoes

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Conductor Fittings

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Braden Mfg. Co., Terre Haute, Ind.  
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
David Levow, New York, N. Y.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Rival Strap Corp., New York, N. Y.

## Conductor Pipe

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Copper

American Brass Co., Waterbury, Conn.  
Revere Copper & Brass Inc., Rome, N. Y.

## Cornices

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Crimping Machines

Bertsch & Co., Cambridge City, Ind.  
Yoder Co., The Cleveland, Ohio

## Cut-offs—Rain Water

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Dampers—Quadrants—Accessories

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Aeolus Dickinson, Chicago, Ill.  
Hart & Cooley Co., Holland, Mich.  
Howes Co., S. M., Boston, Mass.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Parker-Kalon Corp., New York, N. Y.  
Young Ventilating Co., Cleveland, Ohio

## Dampproofs

Lastik Products Corp., Pittsburgh, Pa.

## Diffusers—Air Duct

Aeolus Dickinson, Chicago, Ill.

## Draft Stabilizers

Silent Automatic Corp., Detroit, Mich.

Drive Screws—Hardened Metallic  
Parker-Kalon Corp., New York

## Eaves Trough

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Eaves Trough Hangers

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.  
Berger Bros. Co., Philadelphia, Pa.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Fans—Exhaust

Emerson Elec. Mfg. Co., St. Louis, Mo.

## Fans—Ventilating

Emerson Elec. Mfg. Co., St. Louis, Mo.

## Fluxes—Soldering

Kester Solder Co., Chicago, Ill.  
Ryerson & Son, Inc., Jas. T., Chgo., N. Y., St. L., Det., Cleve.

## Forming Rolls

Bertsch & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.

## Furnace Cement

Connors Paint Mfg. Co., Wm., Troy, N. Y.  
Lastik Products Corp., Pittsburgh, Pa.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Technical Products Co., Pittsburgh, Pa.

## Furnace Chain

Hart & Cooley Co., Holland, Mich.

## Furnace Cleaners—Suction

Baker Furnace Co., Toledo, Ohio  
Brilliant Furnace Co., Brillton, Wis.  
Densmore & Quinal Co., Kenosha, Wis.

Grand Rapids Furnace Cleaner Co., Grand Rapids, Mich.

## Furnace Door Handles

Fanner Mfg. Co., Cleveland, Ohio

## Furnace Fans

A-C Mfg. Co., Pontiac, Ill.  
American Fdy. & Furnace Co., Bloomington, Ill.  
Emerson Electric Mfg. Co., St. Louis, Mo.  
A. Gehri & Co., Tacoma, Wash.  
Warm Air Furnace Fan Co., Cleveland, Ohio

## Furnace Filters

A. Gehri & Co., Tacoma, Wash.  
Independent Air Filter Co., Chicago, Ill.

Kleenaire Filter Co., Stevens Point, Wis.

Lakeside Co., Hermansville, Mich.

## Furnace Pipe and Fittings

Henry Furnace & Fdy. Co., Cleveland, Ohio

Meyer & Bro., Peoria, Ill.

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Osborn Co., The J. M. & L. A., Cleveland, Ohio

Peerless Foundry Co., Indianapolis, Ind.

Williamson Heater Co., Cincinnati, Ohio

## Furnace Pokers

Fanner Mfg. Co., Cleveland, Ohio  
Independent Reg. & Mfg. Co., Cleveland, Ohio

## Furnace Pulleys

Hart & Cooley Co., Holland, Mich.

## Furnace Regulators

Hart & Cooley Co., Holland, Mich.

Lakeside Co., Hermansville, Mich.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Modern Heat Regulator Co., Cleveland, Ohio

White Mfg. Co., Minneapolis, Minn.

## Furnace Rings

Forest City Foundries Co., Cleveland, Ohio

## Furnace and Stove Repairs

A. G. Brauer Supply Co., St. Louis

Des Moines Stove Repair Co., Des Moines, Iowa

Northwestern Stove Repair Co., Chicago

Peerless Fdry. Co., Indianapolis, Ind.

## Furnaces for Gas or Oil

Dail Steel Products Co., Lansing, Mich.

Health-Air Systems, Ann Arbor, Mich.

## Furnaces—Gas

American Fdy. & Furnace Co., Bloomington, Ill.

American Furnace Co., St. Louis, Mo.

Henry Furnace & Foundry Co., Cleveland, Ohio

Lennox Furnace Co., Marshalltown, Iowa

Meyer Furnace Co., Peoria, Ill.

Payne Furnace and Supply Co., Beverly Hills, Calif.

Premier Warm Air Heater Co., Dowagiac, Mich.

Waterman-Waterbury Co., Minneapolis, Minn.

## Furnaces—Gas Auxiliary

Forest City Foundries Co., Cleveland, Ohio

## Furnaces—Oil Burning

Motor Wheel Corp., Heater Div., Lansing, Mich.

## Furnaces—Warm Air

(See Also Unit Air Conditioners)

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.

Agricola Furnace Co., Gadsden, Ala.

American Fdy. & Furnace Co., Bloomington, Ill.

American Furnace & Fdy. Co., Milan, Mich.

American Furnace Co., St. Louis, Mo.

Armstrong Furnace Co., Columbus, O.

Brillion Furnace Co., Brillion, Wis.

Dail Steel Products Co., Lansing, Mich.

Deshler Foundry & Machine Works, Deshler, Ohio

Enterprise Boiler & Tank Works, Chicago, Ill.

Forest City Foundries Co., Cleveland, Ohio

General Heating Co., St. Paul, Minn.

Grill Furnace Co., Scranton, Pa.

Hall-Freal Furnace Co., Indianapolis, Ind.

Health-Air Systems, Ann Arbor, Mich.

Henry Furnace & Fdy. Co., Cleveland, Ohio

Hess Warming & Vent. Co., Chicago, Ill.

Lennox Furnace Co., Marshalltown, Iowa

Liberty Foundry Co., St. Louis, Mo.

Maylie Furnace Co., Newark, Ohio

Meyer Furnace Co., The Peoria, Ill.

Midland Furnace Co., Cleveland, Ohio

Motor Wheel Corp., Heater Div., Lansing, Mich.

Rybold Heater Co., Ashland, Ohio

Schub Furnace & Mfg. Co., Cedar Grove, Wis.

U. S. Furnace Co., Youngstown, Ohio

Waterman-Waterbury Co., Minneapolis, Minn.

Western Steel Products Co., Duluth, Minn.

Williamson Heater Co., Cincinnati, O.

Wise Furnace Co., Akron, Ohio

## Grilles

Auer Register Co., Cleveland, Ohio

Chicago Perforating Co., Chicago, Ill.

Harrington & King Perforating Co., Chicago, Ill.

Hart & Cooley Mfg. Co., Chicago, Ill.

Independent Register & Mfg. Co., Cleveland, Ohio

U. S. Register Co., Battle Creek, Mich.

## Guards—Machine and Belt

Chicago Perforating Co., Chicago, Ill.

Harrington & King Perforating Co., Chicago, Ill.

## Handles—Boiler

Berger Bros. Co., Philadelphia, Pa.

## Handles—Soldering Iron

Parker-Kalon Corp., New York, N. Y.

## Heat Regulators

Hart & Cooley Mfg. Co., Chicago, Ill.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Modern Heat Regulator Co., Cleveland, Ohio

White Mfg. Co., Minneapolis, Minn.

## Heaters—Cabinet

Agricola Furnace Co., Gadsden, Ala.

Motor Wheel Corp., Heater Division, Lansing, Mich.

Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.

Payne Furnace & Supply Co., Beverly Hills, Calif.

Premier Warm Air Heater Co., Dowagiac, Mich.

Waterman-Waterbury Co., Minneapolis, Minn.

## Heaters—School Room

Meyer Furnace Co., The Peoria, Ill.

Waterman-Waterbury Co., Minneapolis, Minn.

Western Steel Products Co., Duluth, Minn.

## Humidifiers

Automatic Humidifier Co., Cedar Falls, Iowa

Clarm Mechanical Devices Co., Lima, Ohio

Columbus Humidifier Co., Columbus, Ohio

Diener Mfg. Co., G. W., Chicago, Ill.

Hess Warming & Vent. Co., Chicago, Ill.

Menominee Air Washer Co., Menominee, Mich.

Meyer & Bro. Co., F., Peoria, Ill.

Sallada Mfg. Co., Minneapolis, Minn.

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BOILER - REPAIRS**

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If You Wish to Give  
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Efficiency Then Let Us  
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"The Furnace with Fins"  
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A warm air furnace contains FIRE—  
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lar strain—joints must be held together—  
RIVETING is the only proven method  
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Makes Perfect Weather and  
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Washed Air, Humidified Air, Forced  
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Also makers of Gradual Operation Regulators

# BUYERS' DIRECTORY

(Continued from page 52)

**Humidifier Valves**  
Apex Regulator Co., Marshalltown, Iowa  
(Continued on page 54)

**Machinery—Culvert**  
Bertach & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.

**Machinery—Rebuilt**  
Interstate Machinery Co., Chicago, Ill.

**Machines and Tools—Tinsmith's**  
Bertach & Co., Cambridge City, Ind.  
Dreis & Krump Mfg. Co., Chicago, Ill.  
Interstate Machinery Co., Chicago, Ill.  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Niagara Mach. & Tool Wks., Buffalo, N. Y.  
Parker-Kalon Corp., New York, N. Y.  
Peck, Stow & Wilcox Co., Southington, Conn.  
Viking Shear Co., Erie, Pa.  
Whitney Mfg. Co., W. A., Rockford, Ill.  
Yoder Co., The, Cleveland, Ohio

**Metal Lath—Expanded**  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

**Miters**  
Barnes Metal Products Co., Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Braden Mfg. Co., Terre Haute, Ind.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

**Motors—Electric**  
Emerson Elec. Mfg. Co., St. Louis, Mo.

**Nails—Hardened Masonry**  
Parker-Kalon Corp., New York, N. Y.

**Oil Burners**  
Laco Oil Burner Co., Griswold, Iowa  
Northern Oil Burners Inc., Minneapolis, Minn.  
Silent Automatic Corp., Detroit, Mich.

**Paint**  
Connors Paint Mfg. Co., Wm., Troy, N. Y.

**Perforated Metals**  
Chicago Perforating Co., Chicago  
Harrington & King Perforating Co., Chicago, Ill.

**Punches**  
Bertach & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.  
Parker-Kalon Corp., New York, N. Y.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.  
W. A. Whitney Mfg. Co., Rockford, Ill.

**Punches—Combination Bench and Hand**  
Parker-Kalon Corp., New York, N. Y.

**Punches—Hand**  
Parker-Kalon Corp., New York, N. Y.  
W. A. Whitney Mfg. Co., Rockford, Ill.

**Putty—Stove**  
Connors Paint Mfg. Co., Wm., Troy, N. Y.

**Radiator Cabinets**  
Hart & Cooley Mfg. Co., New Britain, Conn.

**Registers—Warm Air**  
Auer Register Co., Cleveland, Ohio  
Forest City Foundries Co., Cleveland, Ohio  
Hart & Cooley Co., Holland, Mich.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Independent Register & Mfg. Co., Cleveland, Ohio  
Meyer & Bro. F., Peoria, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Rock Island Register Co., Rock Island, Ill.  
Symonds Register Co., St. Louis, Mo.  
United States Register Co., Battle Creek, Mich.

## Registers—Wood

Auer Register Co., Cleveland, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Repairs—Stove and Furnace

Brauer Supply Co., A. G., St. Louis, Mo.  
Des Moines Stove Repair Co., Des Moines, Iowa  
Northwestern Stove Repair Co., Chicago, Ill.  
Peerless Fdry. Co., Indianapolis, Ind.

## Ridging

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Roofing Cement

Connors Paint Mfg. Co., Wm., Troy, N. Y.  
Lastik Products Corp., Pittsburgh, Pa.

## Roof Flashing

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Roof Paints

Connors Paint Mfg. Co., Wm., Lastik Products Corp., Pittsburgh, Pa.

## Roofing—Iron and Steel

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Inland Steel Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Newport Rolling Mill Co., The, Newport, Ky.

Republic Steel Corp., Youngstown, Ohio

## Roofing—Tin and Terne

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Republic Steel Corp., Youngstown, Ohio

## Rubbish Burners

Hart & Cookey Mfg. Co., New Britain, Conn.

## School—Sheet Metal Pattern Drafting

St. Louis Technical Institute, St. Louis, Mo.

## Schools—Warm Air Heating

St. Louis Technical Institute, St. Louis, Mo.

## Screws—Hardened Metallic Drive

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Parker-Kalon Corp., 200 Varick St., New York

**Screws—Hardened Self-Tapping, Sheet Metal**

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Parker-Kalon Corp., New York

## Screens—Perforated Metal

Chicago Perforating Co., Chicago, Ill.  
Harrington & King Perforating Co., Chicago, Ill.

## Scuppers

Aeolus Dickinson, Chicago, Ill.

## Shears—Hand and Power

Interstate Machinery Co., Chicago, Ill.  
Marshalltown Mfg. Co., Marshalltown, Iowa

Niagara Mach. & Tool Wks., Buffalo, N. Y.

Peck, Stow & Wilcox Co., Southington, Conn.

Viking Shear Co., Erie, Pa.

Yoder Co., The, Cleveland, Ohio

**Sheet Metal Screws—Hardened, Self-Tapping**

Parker-Kalon Corp., New York

## Sheets—Alloy

Inland Steel Co., Chicago, Ill.  
International Nickel Co., New York, N. Y.

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Republic Steel Corp., Youngstown, Ohio

## Sheets—Black and Galvanized

Granite City Steel Co., Granite City, Ill.  
Inland Steel Co., Chicago, Ill.

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Republic Steel Corp., Youngstown, Ohio

## Sheets—Copper

American Brass Co., Waterbury, Conn.  
Revere Copper & Brass Inc., Rome, N. Y.

## Sheets—Iron

Granite City Steel Co., Granite City, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Republic Steel Corp., Youngstown, Ohio

## Sheets—Copper Bearing Steel

Inland Steel Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Republic Steel Corp., Youngstown, Ohio

## Sheets—Nickel

International Nickel Co., New York

**Sheets—Pure Iron Copper Alloy**  
Newport Rolling Mill Co., Newport, Ky.

## Sheets—Special Finish

Inland Steel Co., Chicago, Ill.  
Newport Rolling Mill Co., Newport, Ky.  
Republic Steel Corp., Youngstown, Ohio

## Shingles and Tile—Metal

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Skylights

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Snips

Peck, Stow & Wilcox Co., Southington, Conn.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Snow Guards

Berger Bros. Co., Philadelphia, Pa.  
David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Solder

Kester Solder Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Solder—Acid Core

Kester Solder Co., Chicago, Ill.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Solder—Rosin Core

Kester Solder Co., Chicago, Ill.

## Solder—Self-Fluxing

Kester Solder Co., Chicago, Ill.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Soldering Furnaces

Diener Mfg. Co., G. W., Chicago, Ill.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Soot Destroyer

Saginaw Salt Prod. Co., Saginaw, Mich.

## Specialties—Hardware

Diener Mfg. Co., G. W., Chicago, Ill.

## Stars—Hard Iron Cleaning

Fanner Mfg. Co., Cleveland, Ohio

## Stove Pipe and Fittings

Meyer & Bro. Co., F., Peoria, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

## Stove and Furnace Trimmings

Fanner Mfg. Co., Cleveland, Ohio

## Strainers—Roof

David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Straps—Ornamental Pipe

David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Timplate

Granite City Steel Co., Granite City, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.  
Republic Steel Corp., Youngstown, Ohio

## Tools—Tinsmith's

(See Machines—Tinsmith's)

## Torches

Diener Mfg. Co., G. W., Chicago, Ill.  
Ryerson & Son, Inc., Joa. T., Chgo., N. Y., St. L., Det., Cleve.

## Unit Air Conditioners

Armstrong Furnace Co., Columbus, Ohio  
American Fdry. & Furnace Co., Bloomington, Ill.

American Furnace Co., St. Louis, Mo.  
Dall Steel Products Co., Lansing, Mich.

Henry Furnace & Fdry. Co., Cleveland, Ohio

Health-Air Systems, Ann Arbor, Mich.  
Hess Warming & Ventilating Co., Chicago, Ill.

Lennox Furnace Co., Marshalltown, Iowa

May-Fieberger Co., Newark, Ohio  
Meyer Furnace Co., Peoria, Ill.

Midland Furnace Co., Columbus, Ohio  
Motor Wheel Corp., Lansing, Mich.

Payne Furnace & Supply Co., Beverly Hills, Calif.

Waterman-Waterbury Co., Minneapolis, Minn.

Williamson Heater Co., Cincinnati, Ohio

## Vacuum Cleaners—Furnace

(See Furnace Cleaners)

Baker Furnace Co., Toledo, Ohio  
Brilliant Furnace Co., Brilliant, Wis.

Denamore & Quinlan Co., Kenosha, Wis.

## Ventilators—Ceiling

Hart & Cooley Co., New Britain, Conn.  
Henry Furnace & Fdy. Co., Cleveland, Ohio

Independent Reg. & Mfg. Co., Cleveland, Ohio

## Ventilators—Floor

Aeolus Dickinson, Chicago, Ill.

## Ventilators—Roof

Aeolus Dickinson, Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.

Burt Mfg. Co., Akron, Ohio

Jordan & Co., Paul R., Indianapolis, Ind.

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Water Pressure Regulators

Apex Regulator Co., Marshalltown, Iowa

## Wood Faces—Warm Air

Auer Register Co., Cleveland, Ohio

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Mention AMERICAN ARTISAN in your reply—Thank you!



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# Classified Advertising

## BUSINESS CHANCES

**Lightning Rods**—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

**Wanted**—Patent on gas warm air furnace either outright or on royalty basis. Send full details to W-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**For Sale**—Owner of widely known sheet metal shop wants working partner with ten or twelve thousand dollars to invest. Clean, well-established shop doing good business, no indebtedness, and ideal location. For years we have specialized in making and shipping sky-lights, ventilators, all steel marques, etc. Owner has thorough knowledge of the business. Partner must also be an expert sheet metal worker. Owner can prove that half interest in this plant is a sound and low priced investment. Those without the above mentioned finance, knowledge and ability need not answer. Address Z-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**For Sale**—90 ft. frontage on Broadway, 113 ft. depth. Just 200 ft. from the well patronized Lewis-Clark Bridge. Reason for selling, old age. Address Eckhard Mercantile Company, 512 East Broadway, Alton, Illinois. B-542

**For Sale**—Sheet metal shop doing nice business with A-1 reputation, in town of 12000. Very little competition. Several hundred furnaces installed in community. Everything you need in equipment to work with; good stock on hand; can step right in and go to work. Priced to sell and a wonderful opportunity. Well founded reasons for disposing of this business. You must see this layout to appreciate the offer. Address E-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

## HELP WANTED

### WANTED

**Salesmen for western Ohio, Indiana, and Michigan, for popular priced cast furnace on commission basis.**

Address D-542, AMERICAN ARTISAN  
139 North Clark Street, Chicago, Illinois

### WANTED

**Salesmen for Illinois, Michigan, Indiana, Ohio, Missouri and eastern states. Must be well recommended and acquainted with the heating trade. Address in confidence**

Box F-542, AMERICAN ARTISAN  
139 North Clark St. Chicago, Ill.

## SITUATION WANTED

**Situation Wanted**—An experienced tinner and furnace man is open for a job along these lines. Can also do plumbing. Hardware clerk and general all around man. Can give satisfaction. Iowa preferred but will go anywhere. Reasonable wages. Address E-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

## SITUATION WANTED

### Situation Wanted

By furnace salesman to sell either jobber or dealer. Record as a producer. College graduate, ten years' experience. Address J-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**To A Wide Awake Manufacturer**—Wanted, position as salesman for furnace manufacturer that has a reasonably priced line. Can assure a good amount of business in Illinois and Wisconsin. Can do that if I first have a furnace that is priced right and proper terms. Second, will put one third more time in than would be necessary when business was normal. Then when business gets back to normal—which is only around the corner—we would have the jump on the other fellows that are asleep on their feet. Address D-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

**Situation Wanted**—By sheet metal man of twenty years experience. Have held positions of Superintendent and Executive in large firms. Thoroughly competent in general jobbing, furnace work, oil heating, factory work, manufacturing of furnace fittings, metal stamping, and sales work. College education. Only high class proposition with reliable firm considered. Location no object. Address R-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—By first class tinner making a specialty of warm air heating. Can do all estimating and make blueprints. Can draft patterns and make all fittings. Also some sales experience. Address J. H. Dennis, Juda, Wisconsin. H-541

**Situation Wanted**—By mechanical building trades foreman and sheet metal layout man. Indirect and direct steam; fan systems of all kinds including gas and gas fired furnaces; Durham and cast plumbing; first class lead worker. Last three jobs, High School, Auditorium, Government Court House and Post Office. References from inspectors and employers. Age, 41. Best of health and good habits. Good worker and get good results from men. 22 years in the trades. Will take foremanship or journeyman. Good estimator. Would consider working interest on percentage basis with good firm or contractor. Current wages. Will go anywhere. Address S-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—By a reliable sheet metal worker. Will go anywhere and will take job for a long or short period of time. Have had thirty years experience on cornice, skylight, blow pipe, and general jobbing. Am considered a first class layout man and am a good estimator. Have handled men and done layout and estimating for the past 15 years. Am willing to take any job you can give me. Address L-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—Have had 28 years experience as tinner and plumber. Am qualified to do repairing and work in the following lines: auto radiator repairing, putting up steel ceilings, pump and windmill repairing, steam and hot water work, installing radios, and any kind of a mechanical job that comes in a shop. Can give good references. Address F. C. Blewett, Dodgeville, Wisconsin. M-541

**Situation Wanted**—By married man as sheet metal worker and plumber. Can handle heating of all kinds. Can estimate and figure jobs. Nothing but steady job considered. No Boozers. Address P-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

## SITUATION WANTED

**Situation Wanted**—As manager of heating and repair department with some live, growing warm air heating firm or a well rated sheet metal firm desirous of installing a real heating department. Fifteen years experience in every phase of the work, gravity, fan, and Air Conditioning systems. Address B-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—Have had 30 years' experience in all branches of the trade. Shop foreman in our shop 16 years. Good draftsman. Read plans readily and estimate from same. Have 8 foot Cornice brake, bench and hand tools, 1½ ton truck. Will go anywhere. Please let me hear what you have. Address K-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—By first class tinner and sheet metal worker. Can do plumbing and heating and all kinds of shop work. Address O-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—Experienced tinner and furnace installer wishes steady year around position in southern Minnesota, northern Iowa or near Omaha, Nebraska, or Des Moines, Iowa. Address T-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

**Situation Wanted**—By first class sheet metal worker of long general experience in cornices, heating and special work. Understand blueprints and pattern cutting. Neat and accurate on shop work. Healthy and A-1 habits. Address with particulars F-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—By a first class tinner and sheet metal worker, experienced in warm air heating, pump and windmill work. Best of references. Address G-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

**Situation Wanted**—By an A-1 all around sheet metal worker experienced in all branches of the trade. Also experienced in plumbing work. Excellent references furnished upon request. Address C-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

## TOOLS AND MACHINERY

### FOR SALE

Machinery and tools for a heavy sheet metal shop, consisting of a 72" all steel brake, 30" new squaring shear, one 400 lb. punch press, forming rolls, folders, beaders, stakes, small tools and some stock. Price, \$250. Address Chas. Bar-num, Mankato, Minnesota. X-541

**For Sale**—Complete set of tinner's tools, plumbing tools, and dies up to two inches. Address L. E. Swift, 504 East Front Street, Missoula, Montana. Y-541

**For Sale**—Complete set of tinner's tools. Address J. B. Crowley, Oelwein, Iowa. A-542

**For Sale**—One Carbic portable acetylene generator, Type CLP 2. Used few weeks. Like new. First check for \$35 takes it. Address C. W. Filby, Jefferson, Ohio. C-542

**For Sale**—Set of tinner's tools. Consists of 8 foot steel brake, 30 inch square shears, 30 inch bar folder, slitting shear, bench tools, etc. All in good condition and priced to move at once. Address E. Haverstock, Rt. 7, South Bend, Indiana. Y-540

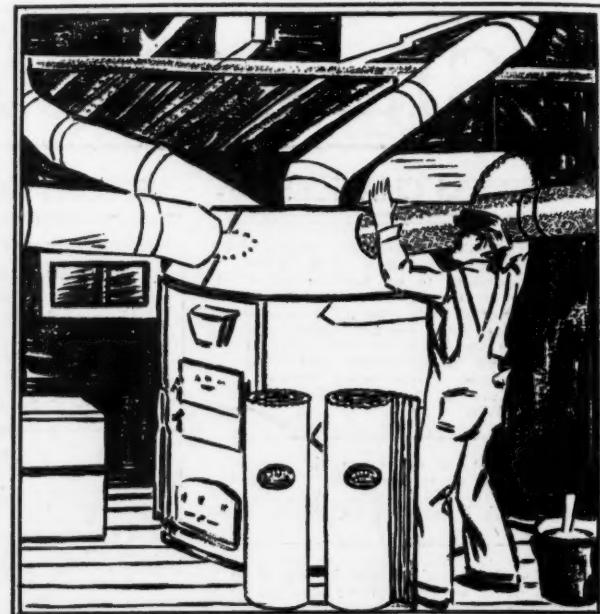
Quality Merchandise  
Tends to Build  
Quality Dealers

That is Why  
**MIDLAND DEALERS**  
Are the Leaders

**SUCCESS  
HEATER**

**EL CAPITAN  
FURNACE**

**MIDLAND FURNACE CO.**  
COLUMBUS, OHIO  
DES MOINES, IOWA



**Cover the Pipes with  
STANOCEL  
ASBESTOS PAPER  
and Make That Extra Profit**

YOU can greatly improve the appearance and increase the efficiency of your warm air furnace installations by covering the pipes and casing with **Corrugated Asbestos Paper**—a flexible insulation material especially suited for wrapping furnace pipes.



**Asbestos Paper**  
8-10-12-14-16-32 lbs. per  
100 square feet.  
18" and 36" wide—50  
or 100 lb. Rolls.



**Asbestos Mill Board**  
1/8-1/4-1/2" thick in sheets  
42x48



**Standard Corrugated Asbestos  
Paper**  
A flexible insulation 3/16, 1/6  
or 1/4 inch thick. Especially  
adapted for ~~warming~~ furnace  
pipes.



**Standard Asbestos  
Mfg. Co. (Ohio)**  
5808 Euclid Ave.  
Cleveland, O.

Mention AMERICAN ARTISAN in your reply—Thank you!



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A corner of the Granite City Steel Company's mill warehouse

## To Help Your Jobber Serve You

JOBBERS who serve the Mississippi Valley, the West and the Southwest find this mill warehouse a helpful source of supply for meeting the "hurry-up" needs of contractor and fabricator. Large stocks of sheets and plates in a complete variety of standard weights and sizes are always available for immediate shipment. Prompt delivery is assured thru an ideal location at Granite City, Illinois, served by 29 railroads and the Mississippi River.

Chicago, Dallas  
Kansas City  
Los Angeles

REG. U. S. PAT. OFF.  
**GRANITE CITY STEEL**  
1878

St. Louis, St. Paul  
San Francisco  
Salt Lake City

**GRANITE CITY STEEL CO.** GRANITE CITY ILLINOIS  
Galvanized Sheets, Steel Sheets — Plates and Tin Plate

# Take a look at your CEILING ...and tell your Neighbors to do likewise!



Five samples  
from the Milcor  
line of winners in  
metal ceiling designs.  
Hundreds of standard patterns.

Get the *outside* slant on *your* store. Walk in your front door. What's your impression of *your* place of business?

Are your ceilings and walls clean . . . bright . . . free from cracks? If they aren't you can't expect people to *like* to come to your store.

Metal Ceilings by *Milcor* will redecorate your place attractively . . . economically . . . quickly. Gone will be the handicap of cracked and fall-

ing plaster . . . Fire risk is reduced. The invisible *Milcor* joint makes a continuous area of beautiful design.

Then go to your neighboring merchants. See how *their* ceilings are . . . and when you find a store that needs redecorating, suggest *Milcor* Metal Ceilings and let us help you figure the job to get it at a profit.

Do it *now*, mister. He who acts fast is the "bird" who gets the good fat worm. Send for complete details . . . *now!*

## MILCOR STEEL COMPANY

MILWAUKEE, WIS., 4117 W. Burnham St. CANTON, OHIO  
Chicago, Ill. Kansas City, Mo. LaCrosse, Wis.

Sales Offices: New York, at 100 E. 42nd Street; Boston, Mass., at 136 Federal Street; Atlanta, Ga., at 207 Bona Allen Building; Minneapolis, Minn., at 602-2nd Avenue; St. Louis, Mo.; Little Rock, Ark., at 104 W. Markham Street

**MILCOR** *Copper-Alloy Steel* **PRODUCTS**  
Save with Steel

